30th ANNUAL CONGRESS OF THE EUROPEAN COLLEGE OF GERODONTOLOGY

Healthy Smiles Longer Lives

VIRTUAL MEETING

www.ecg2020.eu

9-10 OCT. 2020

PROGRAMME & BOOK OF ABSTRACTS

30th ANNUAL CONGRESS
OF THE
EUROPEAN COLLEGE OF GERODONTOLOGY
October 9-10, 2020

PROGRAMME & ABSTRACTS

CONTENTS

WELCOME ADDRESS

Dear colleagues and friends,

It is my great pleasure to welcome you to the 30th annual congress of the European College of Gerodontology (ECG) to be held online on October 9-10, 2020, organised by the Discipline of Gerodontology, School of Dentistry of the National and Kapodistrian University of Athens, Greece.

The ageing of the population poses significant challenges to health and welfare systems. The World Health Organisation considers oral health as a crucial element of "healthy ageing" that is often neglected because of a number of barriers, including multimorbidity, care dependency, limited access to dental care, poor oral health literacy, lack of effective oral health policies, lack of professional support and limited interprofessional collaboration. The main congress theme "healthy smiles, longer lives" highlights the importance of oral health for general health and quality of life during older age.

We regret that due to the Covid-19 pandemic we will not be able to welcome you in Athens as originally planned, but instead, we are very excited to organise a virtual global event. The digital format will allow for live interaction and includes keynote sessions, invited sessions, oral and e-poster communications, workshops, and the prestigious ECG research award competition. We will have the opportunity to meet online old and new friends, exchange ideas and build international networks, while protecting the health and safety of all congress participants. The virtual conference offers tremendous opportunities to welcome participants not only from Europe but also from around the Globe, as there are no time, cost and distance barriers. Delegates will receive a certificate of attendance and the abstracts will be published in a digital abstract book.

On behalf of the ECG Council and the local Organising Committee I look forward to welcoming you online!

Professor Anastassia Kossioni, DDS, MSc (Gerodontics), PGCeODL, PhD
President of the ECG

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

COMMITTEES

EXECUTIVE BOARD OF ECG

- **Professor Anastassia Kossioni**, ECG President, School of Dentistry, National and Kapodistrian University of Athens, Greece
- **Professor Murali Srinivasan**, ECG President Elect, Centre of Dental Medicine, University of Zurich, Switzerland
- **Professor Martin Schimmel**, ECG Honorary Treasurer, School of Dental Medicine, University of Bern, Switzerland

ORGANISING COMMITTEE

Discipline of Gerodontology
Department of Prosthodontics
School of Dentistry
National and Kapodistrian University of Athens, **Greece**

- **Professor Anastassia Kossioni**, ECG President
- **Professor Hercules Karkazis**, ECG Website Editor
- **Dr Maria Antoniadou**
- **Dr Kalliopi Konstantopoulou**
- **Mr Angelos Bakas**

SCIENTIFIC COMMITTEE

- **Professor Anastassia Kossioni**, ECG President, School of Dentistry, National and Kapodistrian University of Athens, Greece
- **Professor Phoebus Madianos**, Dean of the School of Dentistry, National and Kapodistrian University of Athens, Greece
- **Professor Hercules Karkazis**, ECG Website Editor, School of Dentistry, National and Kapodistrian University of Athens, Greece
- **Professor Grigoris Polyzois**, School of Dentistry, National and Kapodistrian University of Athens, Greece
- **Professor Vassiliki Anastassiadou**, School of Dentistry, Aristotle University of Thessaliniki, Greece
- **Dr Maria Antoniadou**, School of Dentistry, National and Kapodistrian University of Athens, Greece

SCIENTIFIC PROGRAMME

The sessions are listed in the conference venue time zone (Athens, Greece, EEST / UCT +3)

FRIDAY, OCTOBER 9th, 2020

<div style="text-align: right">**STREAM 1**</div>

10:10-10:30 **Welcome and Opening**
Anastassia Kossioni (Greece), ECG President, School of Dentistry, National and Kapodistrian University of Athens
Meletios-Athanasios Dimopoulos, Rector of the National and Kapodistrian University of Athens, Greece
Phoebus Madianos, Dean of the School of Dentistry, National and Kapodistrian University of Athens, Greece
Gregory Polyzois, Chair of the Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Greece
Mr Kostas Bakoyannis, Mayor of Athens, Greece

10:30-11:00 **Keynote Lecture 1**
Chair: **Anastassia Kossioni** (Greece)

COVID-19: Recent developments in the management of a multi system disease
Meletios-Athanasios Dimopoulos (Greece)

11:05-12:20 Invited Session 1: **Barriers to oral health and access to dental care in older adults**
Chair: **Vassiliki Anastassiadou**, (Greece)

Oral health and inequalities in ageing societies: A public health perspective
Georgios Tsakos (United Kingdom)

Geriatric oral health: A wicked problem. Looking beyond the social determinants
Linda Slack-Smith (Australia)

Infrastructural issues in oral health care for older adults: Perspectives from the little red dot!
Adrian Yap (Singapore)

Discussion

12:25-14:05 Invited Session 2: **The oral-systemic connection in older adults**
Chair: **Murali Srinivasan** (Switzerland)

Guidelines for older patients with diabetes mellitus and periodontal disease
Phoebus Madianos (Greece)

Influence of lack of occlusion on cognitive decline among old Japanese
Kazunori Ikebe (Japan**)**

<div style="text-align: right">**FRIDAY, OCTOBER 9th, 2020**</div>

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

The association between oral health and nutrition in older adults
Vassiliki Anastassiadou (Greece)

How nutrient deficiencies affect oral health in older adults
Angus Walls (United Kingdom)

Discussion

STREAM 1

15:15-16:15   Oral Session 4: **The association of oral with general health in older adults**
Chair: **Barbara Janssens** (Belgium)

OP4.1 - *TMD patients of various age groups: A multidimensional psychological assessment*
Ye Cao[1,4,5,6], Adrian Ujin Yap[1,7,8,9], Jie Lei[2,3,4,5,6], Minjuan Zhang[2,3,4,5,6], Kai Yuan Fu[2,3,4,5,6]
[1]*Department of Prosthodontics, Peking University School & Hospital of Stomatology, Beijing, China;* [2]*Department of Oral & Maxillofacial Radiology, Peking University School & Hospital of Stomatology, Beijing, China;* [3]*Center for TMD & Orofacial Pain, Peking University School & Hospital of Stomatology, Beijing, China;* [4]*National Clinical Research Center for Oral Diseases, Beijing, China;* [5]*National Engineering Laboratory for Digital and Material Technology of Stomatology, Beijing, China;* [6]*Beijing Key Laboratory of Digital Stomatology, Beijing, China;* [7]*Department of Dentistry, Ng Teng Fong General Hospital, National University Health System, Singapore;* [8]*Faculty of Dentistry, National University of Singapore, Singapore;* [9]*Duke-NUS Medical School and National Dental Research Institute Singapore, National Dental Centre, SingHealth , Singapore*

OP4.2 - *Validation of the effect of xerogenic medicines on dental outcomes*
Duangjai Lexomboon[1], Edwin CK Tan[1,2], Henrike Häbel[1], Johan Fastbom[1], Maria Eriksdotter[1], Kristina Johnell[1], **Gunilla Sandborgh-Englund**[1,3]
[1]*Karolinska Institutet, Stockholm, Sweden;* [2]*The University of Sydney, Sydney, Australia;* [3]*Academic Center for Geriatric Dentistry, Stockholm, Sweden*

OP4.3 - *Systematic review of the association between periodontitis and cognitive impairment in dependent older adults*
Nicola Holland[1], Sinead Watson[1], Claire McEvoy[1], Bernadette McGuinness[1], Lewis Winning[2], George Tsakos[3], Paul Brocklehurst[4], Murali Srinivasan[5], Gerald McKenna[1]
[1]*Centre for Public Health, Queens University, Belfast, United Kingdom;* [2]*Dublin Dental University Hospital, Dublin, Ireland;* [3]*University College, London, United Kingdom;* [4]*Bangor University, Bangor, Wales;* [5]University of Zürich, Zürich, Switzerland*

OP4.4 - *Oral health and functional capacity of centenarians*
Caroline Sekundo[1], **Eva Langowski**[1], Samuel Kilian[2], Cornelia Frese[1]
[1]*Clinic for Oral, Dental and Maxillofacial Diseases, University Hospital Heidelberg, Heidelberg, Germany;* [2]*Institute of Medical Biometry and Informatics, University of Heidelberg, Heidelberg, Germany*

OP4.5 - *Assessed and perceived oral health of older people who visit the dental practice*
PC Bots-VantSpijker[1,2], C.D Van der Maarel-Wierink[2,3], J.M.G.A. Schols[2,4], J.J.M. Bruers[1,5]
[1]*Department of Social Dentistry and Behavioural Sciences, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit, Amsterdam, Netherlands;* [2]*Flemish-Netherlands Geriatric Oral Research Group (BENECOMO), Ghent, Belgium;* [3]*Center for Special Care in Dentistry, Amsterdam, Netherlands;* [4]*Caphri/Department of Family Medicine and Department of Health Services Research, Maastricht University, Maastricht, Netherlands;* [5]*Royal Dutch Dental Association (KNMT), Utrecht, Netherlands*

Discussion

16:20-17:35	Invited Session 3: **Dental care delivery systems for frail older adults** Chair: **Vassiliki Anastassiadou** (Greece) *Dental home care for frail older adults* **Laura Kaufman** (USA) *Oral healthcare delivery in nursing homes: Turning aversion into pleasure* **Barbara Janssens** (Belgium) *Virtual visits: Teledentistry for older adults* **Jennifer E. Hartshorn** (USA) Discussion
17:35-17:40	Break
17:40-19:00	Invited Session 4: **Gerodontology decision making and treatment planning** Chair: **Leonardo Marchini** (USA) *Theory in dental geriatrics* **Michael I. MacEntee** (Canada) *How can oral care in older people be delivered?* **Inger Wårdh** (Sweden) *Treatment planning for the frail older adults in the age of COVID-19* **Ronald Ettinger** (USA) Discussion

STREAM 2

11:15-11:30	Satellite Lecture 1: **Health starts in the mouth** **Tim Übermuth (**Germany) Sponsored by: bredent group
11:30-11:55	Satellite Lecture 2: **The use of adhesives for patients with Dentures** **Panagiota Saraki** (Professional & Scientific Relations Manager P&G, Greece & Bulgaria) Sponsored by: P&G

12:00-13:00   Oral Session 1: **Gerodontology education and prevention**
Chair: **Hercules Karkazis** (Greece)

OP1.1 - *Implementation and assessment of an oral health education programme for formal caregivers in nursing homes*
Kalliopi Konstantopoulou, Hercules Karkazis, Gregory Polyzois, Anastassia Kossioni
Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

OP1.2 - *Impact of oral health education on knowledge, attitudes and practices among healthcare professionals*
Sophia Yee[1], Kuan Yee Wong[1], Claudia Koh[2]
[1]Department of Dental Surgery, Khoo Teck Puat Hospital, Singapore; [2]Department of Geriatric Medicine, Khoo Teck Puat Hospital, Singapore

OP1.3 - *Project 'Don't Forget the Mouth!' to improve oral health of community-dwelling frail older people: An evaluation*
Bach van Ho[1], Claar Debora van der Maarel-Wierink[2], Annemiek Rollman[1], Roxane Anthea Francesca Weijenberg[1], Frank Lobbezoo[1]
[1]Department of Orofacial Pain and Dysfunction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and VU University, Netherlands; [2]Department of Medical Dental Interaction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and VU University, Netherlands

OP1.4 - *A qualitative analysis of dental students' perceptions towards older patients*
Kyriaki Ioannidou, Eirini Basdeki, Daphne Kalyva, Ioannis Tranoulis, Anastassia Kossioni
Division of Gerodontology,Department of Prosthodontics,School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

OP1.5 - *Sources of information about daily oral hygiene for community-dwelling older adults*
Dimokritos Papalexopoulos, Kalliopi Konstantopoulou, Anastassia Kossioni
Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

OP1.6 - *Perception of the faculty and Deans about geriatric dentistry in the undergraduate and postgraduate curriculum in dental schools of India*
Kamal Shigli[1], Sushma Nayak[2], Rashmi Kusurkar[3], Vasanti Lagali Jirge[4], Fadekemi Oginni[5], Jayashri Tamanna Nerali[6], Deepti Vadavi[7], Puneet Gupta[8]
[1]DY Patil Dental School, Pune, India; [2]Public Health Dentist, Bangalore, India; [3]Amsterdam UMC, Faculty of Medicine, Vrije University, Amsterdam, Netherlands; [4]Department of Oral Medicine and Radiology, KLEVK Institute of Dental Sciences, Belagavi, India; [5]Department of Oral and Maxillofacial Surgery, Obafemi Awolowo University, Nigeria; [6]Department of General Dentistry, Penang Dental College, Malaysia; [7]Department of Public Health Dentistry, DAPMRV Dental College, Bangalore, India; [8]Department of Public Health Dentistry, Government College of Dentistry, Indore, India

Discussion

13:05-14:00   Oral Session 2: **Oral-health related quality of life and treatment preferences in older adults**
Chair: **Najla Chebib** (Switzerland)

OP2.1 - *Dental treatment guideline for the elderly with dementia: The JSG protocols*
Hirohiko Hirano[1,2], Ayako Edahiro[1,2], Shunsuke Minakuchi[1,3]
[1]The Japanese Society of Gerodontorogy, Tokyo, Japan; [2]Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology, Tokyo, Japan; [3]Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan

OP2.2 - *Critical assessment on unmet oral health care needs and oral health-related quality life among older adults*
Ramya Shenoy, Roma M.
Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, India

OP2.3 - *Quality of life of elderly maxillectomy patients restored with obturator prostheses*
Ioli Ioanna Artopoulou
National and Kapodistrian University of Athens, School of Dentistry, Athens, Greece

OP2.4 - *Oral health in dependent older adults: An exploration of views from a range of stakeholders*
Julie Mcmullan[1], Sinead Watson[1], Georgios Tsakos[2], Paul Brocklehurst[3], Richard Watt[2], Rebecca Wassall[4], Andrea Sheriff[5], Sheena Ramsay[4], Danielle Logan[1], Gerald McKenna[1]
[1]Queen's University Belfast, Belfast, United Kingdom; [2]University College London, London, United Kingdom; [3]Bangor University, Bangor, United Kingdom; [4]Newcastle University, Newcastle, United Kingdom; [5]University of Glasgow, Glasgow, United Kingdom

OP2.5 - *Exploring preferred dental services of Swiss older people for when they become dependent*
Najla Chebib[1], Samir Abou-Ayash[2], Sabrina Maniewicz[1], Murali Srinivasan[3], Harry Hill4, Gerald McKenna[5], Emily Holmes[6], Martin Schimmel[1,2], Paul Brocklehurst[7], Frauke Müller[1]
[1]Division of Gerodontology and Removable Prosthodontics, University Clinics of Dental Medicine, University of Geneva, Geneva, Switzerland;[2]Division of Gerodontology, School of Dental Medicine, University of Bern, Bern, Switzerland; [3]Clinic of General- Special care- and Geriatric Dentistry, Center of Dental Medicine, University of Zürich, Zürich, Switzerland; [4]Health and Decision Science, University of Sheffield, Sheffield, United Kingdom; [5]Health Services Research Group, Centre for Public Health, Queens University Belfast, Belfast, United Kingdom; [6]Centre for Health Economics and Medicines Evaluation (CHEME), School of Health Sciences, Bangor University, Bangor , United Kingdom; [7]NWORTH Clinical Trials Unit, Bangor University, Bangor Gwynedd , Wales, United Kingdom

Discussion

14:05-15:05   Oral Session 3: **Hospital, domiciliary and nursing home oral care for older adults**
Chair: **Hercules Karkazis** (Greece)

OP3.1 - *Demand for dental care of aged in a General Hospital in Greece*
Aikaterini Dimitriou, Aggeliki Giannopoulou, John Fandridis, Flora Zervou-Valvi
Dental Department of "Asklepieion Voula's" General Hospital, Athens, Greece

OP3.2 - Benefits of a systematic oral examination in an Acute Care Geriatrics Department

Pierre-Emmanuel Cailleaux[1,4], Françoise Tilotta[2,5], Didier Haguenauer[1], Philippe Charru[1], Marysette Folliguet[3,5]

[1]Geriatrics Department, Hôpital Louis-Mourier (Assistance Publique - Hôpitaux de Paris), Colombes, France; [2]Oral medicine - Odontology Department, Hôpital Louis-Mourier (Assistance Publique - Hôpitaux de Paris), Colombes, France; [3]International Association of Gerodontology, Paris, France; [4]Faculté de médecine - Université de Paris, Paris, France; [5]Faculté d'odontologie - Université de Paris, Paris, France

OP3.3 - *Findings connected to the use of removable dentures among old adults living in institutional residencies*

Martyna Zorawna[1], Päivi Mäntylä[1,3,4], Riitta Saarela[5], Lina Julkunen[1,2], Kaija Hiltunen[1]

[1]Department of Oral and Maxillofacial Diseases, University of Helsinki, Helsinki, Finland; [2]Clinical Dentistry, Helsinki University Hospital, Helsinki, Finland; [3]Institute of Dentistry, University of Eastern Finland, Kuopio, Finland; [4]Kuopio University Hospital, Oral and Maxillofacial Diseases, Kuopio, Finland; [5]Department of Social Services and Health Care, Oral Health Care, City of Helsinki, Helsinki, Finland

OP3.4 - *A systematic review examining perception of oral health care in older population living in long term facilities*

Sviatlana Anishchuk[1,2], Yvonne Howell[1,2]

[1]Dublin Dental School University, Dublin, Ireland; [2]Trinity College Dublin, Dublin, Ireland

OP3.5 - *Nurse Led Domiciliary Assessment Clinic: A service evaluation*
Japarsh Gill
Community Dental Service - Sheffield NHS Foundation Trust, Sheffield, United Kingdom

OP3.6 - The impact of dental treatments on blood pressure variations
Belisa Olmo, Manuel Ribera
Universitat Internacional De Catalunya, Sant Cugat Del Vallès, Spain
Dental Department of "Asklepieion Voula's" General Hospital, Athens, Greece

Discussion

16:10-17:05   Oral Session 5: **Oral rehabilitation in older adults**
Chair: Gerald McKenna (United Kingdom)

OP5.1 - *A prospective cohort on the incidence of fractures in single-implant mandibular overdentures*
Marcella Paula[1], Tulio Nogueira[1], Joyce Cardoso[1], Gerald McKenna[2], Claudio Leles[1]
[1]School of Dentistry, Federal University of Goiás, Goiânia, Brazil; [2]Centre for Public Health, Queen's University, Belfast, Ireland-United Kingdom

OP5.2 - *Use of a single short (7 mm) implant to retain an overdenture in patients with extremely resorbed mandibles: A 1-year prospective study*
Túlio Nogueira, Lucas Ala, Fillipe Dias, Cláudio Leles
Federal University of Goiás, Goiânia, Brazil

OP5.3 - *Abutment survival and complication frequency in root-cap retained overdentures with precision attachments after 3 - 15 years in situ: A retrospective clinical study*
Adrian Weber[1], **Samir Abou-Ayash**[1], Anja Katrin Stalder[1], Camille Henriette Berger[1], Caroline Arnold[1], Martin Schimmel[1,2]
[1]Department of Reconstructive Dentistry and Gerodontology, University of Bern, Bern, Switzerland; [2]Division of Gerodontology and Removable Prosthodontics, University of Geneva, Geneva, Switzerland

OP5.4 - *Orthodontic treatment approach in periodontally susceptible elderly patients*
Frantzeska Karkazi, Petros Papaeftymiou, Fulya Özdemir
Department of Orthodontics, Marmara University, Istanbul, Turkey

OP5.5 - *Pre-prosthetic orthodontic treatment in elderly patients*
Petros Papaefthymiou[1], Maria Antoniadou[4], Frantzeska Karkazi[1], Nuraj Yılmaz[1]
[1]Department of Orthodontics, Marmara University, Istanbul, Turkey; [2]Dental school of Athens, National and Kapodistrian University of Athens, Athens, Greece

Discussion

17:10-18:10   Oral Session 6: **Nutrition, prevention and oral epidemiology**
Chair: Gerald McKenna (United Kingdom)

OP6.1 - *Diet coaching approach in independent elderly for better oral health*
Maria Antoniadou[1], Frantzeska Karkazi[2], Theodoros Varzakas[3]
[1]National and Kapodistrian University of Athens, Athens, Greece; [2]Marmara University, Instabul, Turkey; [3]University of Peloponnese, Kalamata, Greece

OP6.2 - *The impact of denture-wearing status on nutrient intake among middle- and older-aged adults in the UK Biobank cohort*
Sinead Watson[1], Julie McMullan[1], Jayne Woodside[1,2], Gerald McKenna[1]
[1]Centre for Public Health, Queen's University Belfast, Belfast, United Kingdom; [2]Institute for Global Food Security, Queen's University Belfast, Belfast, United Kingdom

OP6.3 - *Do nutritional interventions aimed at frailty prevention include oral health components? A systematic review of interventional studies*
Faisal Hakeem[1], Roberto Carlos Castrejón-Pérez[2], Paula Moynihan[3], Gerald McKenna[4]
[1]King's College London, London, United Kingdom; [2]Geriatric Epidemiology Research Department, National Institute of Geriatrics, Mexico City, Mexico; [3]The University of Adelaide, Adelaide, Australia; [4]Queen's University Belfast, Belfast , United Kingdom

OP6.4 - *Brushing teeth in patients with reduced oral hygiene by trained layperson staff - A randomized-controlled intervention study*
Anna Greta Barbe, Aya Al-Barwari, Michael Noack
University of Cologne, Cologne, Germany

OP6.5 - *Role of sialic acid in detection of disease in elders – A scoping review*
Ana Akhtar
Pitie Salpetrière Charles Foix Hospital, Paris Sorbonne, France

Discussion

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

FRIDAY, OCTOBER 9th, 2020

STREAM 2

18:15-19:15   Oral Session 7: **Ageing research and COVID-19 topics**
Chair: **Vassiliki Anastassiadou** (Greece)

OP7.1 - *A conceptual framework for facial ageing using primary dimensional descriptors*
Ioanna Yiallouridou[1], Vassiliki Anastassiadou[1], George Menexes[2], Petros Koidis
[1]*Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece;* [2]*Department of Informatics in Agriculture, School of Agriculture, Faculty of Agriculture, Forestry and Natural Environment, Aristotle University of Thessaloniki, Thessaloniki, Greece*

OP7.2 - *Challenges in a systematic search for a metatheory on how patients manage tooth loss*
Maha Alsahan[1,2], Michael I MacEntee[1], S Ross Bryant[1]
[1]*Department of Prosthodontics and Dental Geriatrics, Faculty of Dentistry, University of British Columbia, Vancouver, Canada;* [2]*Department of Prosthodontic Dental Sciences, College of Dentistry, King Saud University, Riyadh, Saudi Arabia*

OP7.3 - *Biological effects of "inflammageing" on human oral cells: A contribution to age-related diseases*
Elli Alexakou[1], Athina Bakopoulou[1], Danae A. Apatzidou[2], Vassiliki Anastassiadou[1]
[1]*Department of Prosthodontics, School of Dentistry, Faculty of health Sciences, Aristotle University of Thessaloniki (A.U.TH.) , Thessaloniki, Greece;* [2]*Department of Preventive Dentistry, Periodontology & Implant Biology, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki (A.U.TH.) , Thessaloniki, Greece*

OP7.4 - *Personal protection for caregivers: Tips concerning oral health in light of COVID-19*
Almir Oliva Filho, Raquel Araújo
ABOPE, Rio De Janeiro, Brazil

OP7.5 - *COVID-19 Pandemic: students' perspectives on dental geriatric care and education*
Mario Brondani, Leeann Donnelly
UBC, Vancouver, Canada

OP7.6- *COVID-19: A burden for maintaining oral health in dependent elders*
Andrea Lundberg[1], Anna-Lena Hillebrecht[1], Gerald McKenna[2], Murali Srinivasan[1]
[1]*Clinic of General, Special care, and Geriatric Dentistry Centre of Dental Medicine, University of Zurich, Zurich, Switzerland;* [2]*Queen's University Belfast, Belfast, Belfast, United Kingdom*

Discussion

13:50-14:50   Workshop 1:**Geriatrics education for dentists**
Chair: **Frauke Müller** (Switzerland)

Current status of geriatrics education in dentistry at a global level
Sayaka Tada (Singapore)

Geriatrics competences for dentists
Regina Roller-Wirnsberger (Austria)

Geriatrics education in gerodontology at the University of Bern
Martin Schimmel (Switzerland)

Discussion

14:55-16:05   Workshop 2: **Interprofessional education in geriatrics and gerodontology**
Chair: **Leonardo Marchini** (USA)

Interprofessional education in gerodontology: prevalence, strengths, weaknesses and future research
Leonardo Marchini (USA)

Interprofessional education in geriatrics- best practices
Sanja Thompson (United Kingdom)

The University of Oslo interprofessional education in gerodontology programme
Lene Hove (Norway)

The University of Athens interprofessional education in gerodontology programme
Anastassia Kossioni (Greece)Discussion

Discussion

16:15-17:20   Workshop 3: **Meet the Editor: Gerodontology**
Linda Slack Smith (Australia)

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

E.O.O.

CITY OF
ATHENS

SATURDAY, OCTOBER 10th, 2020

10:00-11:00   Oral session 8: **European College of Gerodontology & Japanese Society of Gerodontology Young Researchers' Session**
Chair: **Martin Schimmel** (Switzerland) - **Koichiro Matsuo** (Japan)

OP8.1 - *Oral function and food intake status in subacute stroke patients admitting to a convalescent rehabilitation unit*

Yu Sekimoto[1], Koichiro Matsuo[1], Nami Katayama[1], Mieko Okamoto[1], Seiko Shibata[2], Eiichi Saitoh[2]

[1]*Department of Dentistry and Oral-maxillofacial Surgery, School of Medicine, Fujita Health University, Toyoake, Japan;* [2]*Department of Rehabilitation Medicine I, School of Medicine, Fujita Health University, Toyoake, Japan*

OP8.2 - *Elders with care-resistant behavior in nursing homes*

Mohamed El Gedaily[1], Hansmartin Spatzier[1], Murali Srinivasan[1]

[1]*Clinic of General, Special care, and Geriatric Dentistry Centre of Dental Medicine, University of Zurich, Zurich, Switzerland;* [2]*Queen's University Belfast, Belfast, United Kingdom*

OP8.3 - *Oral function was associated with physical performance, muscle strength and skeletal muscle mass in old-old Japanese*

Yuki Murotani, Kodai Hatta, Toshihito Takahashi, Motoyoshi Fukutake, Yusuke Mihara, Kenichi Matsuda, Hitomi Sato, Hiromasa Hagino, Kaori Enoki, Yoshinobu Maeda, Kazunori Ikebe

Department of Prosthodontics, Gerodontology and Oral Rehabilitation, Graduate School of Dentistry Osaka University, Suita, Japan

OP8.4 - *Effects of domiciliary professional oral care for care-dependent elderly in nursing homes*

Caroline Girestam Croonquist[1,2], Jesper Dalum[3], Pia Skott[1,2], Petteri Sjögren[4], Inger Wårdh[2,3], **Elisabeth Morén**[3]

[1]*Folktandvården Stockholm AB, Stockholm, Sweden;* [2]*Academic Centre of Geriatric Dentistry, Stockholm, Sweden;* [3]*Department of dental medicine, Karolinska Institutet, Huddinge, Sweden;* [4]*Oral Care AB, Stockholm, Sweden*

OP8.5 - *The features of oral health status and functions in Mild Cognitive Impairment (MCI) patients*

Hiroyuki Suzuki[1], Jinichi Furuya[2,3], Chiaki Matsubara[3], Rena Hidaka[4], Haruka Tohara[3], Shunsuke Minakuchi[1]

[1]*Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bukyo , Japan;* [2]*Geriatric Dentistry, Showa University School of Dentistry, Hatanodai Shinagawa, Japan;* [3]*Dysphagia Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bunkyo, Japan;* [4]*Oral Health Sciences for Community Welfare, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bunkyo, Japan*

OP8.6 - *Chewing efficiency, global cognitive functioning, and dentition: A cross-sectional observational study in older people with mild cognitive impairment or mild to moderate dementia*

Suzanne Delwel[1,2], Andrea B. Maier[3,4], Donya Parvaneh[1], Jesse Meijers[5], Erik J.A. Scherder[2], Frank Lobbezoo[1]

[1]*Department of Orofacial pain and dysfunction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands;* [2]*Department of Clinical Neuropsychology, Faculty of Behavioral and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam, Netherlands;* [3]*Department of Medicine and Aged Care, @AgeMelbourne, The Royal Melbourne Hospital, University of Melbourne, Melbourne, Australia;* [4]*Department of Human Movement*

Sciences, @AgeAmsterdam, Faculty of Behavioural and Movement Sciences, Amsterdam Movement Sciences, Vrije Universiteit, Amsterdam, Netherlands; [5]Triggre, Amersfoort, Netherlands

Discussion

SATURDAY, OCTOBER 10th, 2020

11:10-11:50   **ECG Research Award Competition**
Chair: **Murali Srinivasan** (Switzerland)

AW1 - *Risk factors for root caries prevalence in an urban community – dwelling older population*
Grigoria Gkavela, Anastassia Kossioni
Division of Gerodontology, Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

AW2 - *Development of a consensus on a standard for oral health care in care-dependent older people: An e-Delphi study*
Nattida Charadram[1], Sabrina Maniewicz[1], Stefania Maggi[2], Mirko Petrovic[3], Anastassia Kossioni[4], Murali Srinivasan[5], Martin Schimmel[6], Philippe Mojon[1], Frauke Müller[1], On behalf of e-Delphi working group*
[1]Division of Gerodontology and removable Prosthodontics, University clinics of dental medicine, University of Geneva, Geneva, Switzerland, [2]CNR Institute of Neuroscience, Aging Branch, Padua, Italy, [3]Section of Geriatrics, Department of Internal Medicine and Paediatrics, Ghent University, Ghent, Belgium, [4]Division of Gerodontology, Department of Prosthodontics, Dental School, National and Kapodistrian University of Athens, Athens, Greece, [5]Clinic of General-, Special Care-, and Geriatric Dentistry, Center of Dental Medicine, University of Zurich, Zurich, Switzerland, [6]Division of Gerodontology, School of dental medicine, University of Berne, Berne, Switzerland

AW3 - *Oral factors and adherence to the Mediterranean diet in an older Greek population*
Andrianna Bousiou[1], Georgia Martimianaki[2], Eleni Peppa[2], Antonia Trichopoulou[2], Argy Polychronopoulou[3], Dimitrios Halazonetis[4], Martin Schimmel[5], Anastassia Kossioni[1]
[1]Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece, [2]Hellenic Health Foundation, Athens, Greece, [3]Department of Preventive and Community Dentistry, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece, [4]Department of Orthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece, [5]Department of Reconstructive Dentistry and Gerodontology, School of Dental Medicine, University of Bern, Bern, Switzerland

Discussion

11:55-13:10   Invited Session 5: **Dental care for care dependent older people**
Chair: **Frauke Müller** (Switzerland)

Facilitating effective decision making in dental care for people living with dementia
Andrew Geddis-Regan (United Kingdom)

Medical risk assessment for hospital referral of geriatric dental patients
Flora Zervou-Valvi (Greece)

Mouth Care Matters – Improving the oral health of patients in hospitals in England
Mili Doshi (United Kingdom)

Discussion

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

E.O.O.

CITY OF
ATHENS

13:15-13:50   **Keynote Lecture 2**
Chair: **Anastassia Kossioni** (Greece)

Diet and longevity
Antonia Trichopoulou (Greece)

SATURDAY, OCTOBER 10th, 2020

13:55-15:30   Invited Session 6: **Tooth replacement for older adults**
Chair: **Martin Schimmel** (Switzerland)

Material research regarding root caries in older adults
Masanao Inokoshi, (Japan)

Functionally orientated tooth replacement for older adults
Gerald McKenna (United Kingdom)

Adaptation of complete dentures' fabrication techniques in frail older adults
Frauke Müller (Switzerland)

Dental implants for the older edentates
Murali Srinivasan (Switzerland)

Discussion

15:35-16:05   **Closing - ECG Award Winner - Next Annual Meeting**
Chair: **Anastassia Kossioni** (Greece) - **Murali Srinivasan** (Switzerland)

16:30-17:00   **ECG General Assembly**
The ECG General Assembly will take place using Zoom online platform and can be attended only by ECG Members. All ECG members will receive an email with the respective link from the ECG secretary to attend the General Assembly.

ABSTRACTS FOR
ORAL PRESENTATIONS

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

AW1

Risk factors for root caries prevalence in an urban community – dwelling older population

Grigoria Gkavela, Anastassia Kossioni

Division of Gerodontology, Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background: Despite progress in dental science, oral disease is still common in older people due to multiple barriers and risk factors. As many older individuals retain a significant number of natural teeth root caries prevalence is increasing. Identifying the associated risk factors is necessary for the development of appropriate preventive interventions.

Aim: The aim of this study was to assess the risk factors for root caries prevalence in a community-dwelling urban population aged over 60 years in Athens, Greece.

Methods: The investigation was conducted at 8 Open Care Community Centers for Older People in Metropolitan Athens, in areas of different socio-economic stratification, based on the same methodology and selection procedure with the latest national oral health survey (2013) to obtain comparable data, and a sample representative of the population studied. The participants were informed about the aims and methodology of the study before written consent was obtained. The study was approved by the Ethics and Research Committee of the School of Dentistry of the National and Kapodistrian University of Athens (#225/ 2014).

The study was conducted anonymously from September 2015 to June 2016 and included interviews using structured questionnaires and a clinical examination. The questionnaire included parameters related to sociodemographic, medical and dental factors. Sociodemographic data included age, gender, family status, level of education, and monthly income. To assess the presence of depressive symptoms, the 15-item Geriatric Depression Scale (GDS-15) validated in Greek was used. Dental history taking recorded current oral symptoms, dental and denture hygiene habits, the use of removable prostheses, and the use of dental services. The subjective feeling of dry mouth (xerostomia) was evaluated using the 11-item Xerostomia Inventory, after translation and validation in Greek.

The clinical examination was conducted with the use of a head light, a dental mirror, and a WHO-CPI periodontial probe with marks at 3.5, 5.5, 8.5 and 11.5mm, round end of 0.5 mm, and black markings between 3.5 and 5.5 mm, and between 8.5 and 11.5mm. During the examination, all the necessary measures were taken to control infection. Gauzes were also used to remove saliva and plaque when required. Carious lesions were recorded according to ICDAS II and then the RCI (Root Caries Index) was calculated. The percentage of decayed roots related to the total number of remaing teeth was also calculated. To check the condition of periodontal structures, the Community Periodontal Index of Treatment Needs (CPITN) was calculated, as follows: 0 healthy periodontium, 1 bleeding on probing, 2 presence of calculus, 3 presence of a 4-5 mm pocket and 4 presence of a pocket larger than 6 mm. For the assessment of oral hygiene the OHI-S (Simplified Oral Hygiene Index) was calculated.

To determine the stimulated salivary flow rate, each participant had to chew a paraffin wax pellet for 3 minutes, and then spit all the generated saliva in a measuring cap. The saliva resting viscosity was visually assessed. Saliva pH was measured with specialised pH–indicator papers. All participants were tested according to the standard protocol for saliva measurements, during morning hours and at least one hour after food intake, with the recommendation not to have consumed/used tobacco or chewing gum.

One examiner conducted all measurments after being calibrated with experienced investigators. Test-retest reliability was investigated in 30 participants and the findings showed high consistency ($r2>0.900$).

Statistical analysis included descriptive statistics and bivariate analyses (Mann-Witney tests, Kruskall Wallis tests and Spearman correlation coefficients). The independent variables that were significantly associated with values over the 75th percentile of the percentage of root caries prevalence were included in a multiple logistic regression analysis; the dependent variable was dichotomised into scores above (#1) and below (#0) the 75th percentile. The level of statistical significance was set at $P≤0.05$. The IBM SPSS 21.0 statistical software was used for the analyses.

Results: From a total of 352 recorded participants, 297 were dentate and were included in the present study. A total of 117 were males and 180 females, with a mean age of 73.2±6.8 years (range 60-91 years). Forty-six percent reported that they had visited the dentist in the past 12 months. A total of 134 persons (45.1%) brushed the teeth more frequently than once per day and 116 (39%) used complete and/or partial dentures. One hundred and eighteen participants (39.7%) had good oral hygiene. Twenty eight percent had at least one active untreated root decay. The RCI value was 0,2±0,3 and the mean percentage of carious roots per individual was 8.1% ± 19.4%. A healthy periodontium was recorded in 3.4% of the dentate individuals, medium pockets (4-5mm) in 35.5% and deep pockets (≥6mm) in 47.0% of them. Sixteen participants (5.4%) had a reduced salivary flow of <0.5ml/min and 74 (24.9%) a bubbly saliva quality. Bivariate analyses, using the RCI as dependent variable, associated a higher root caries prevalence with being 75-84 years old (Kruskall-Wallis test, P=0.024), with lower saliva quantity (Mann-Whitney test, P=0.026), bubbly saliva quality (Mann-Whitney test, P<0.001), lower salivary pH (Spearman correlation coefficient, P=0.002), fewer teeth (Kruskall-Wallis test, P=0.003), poor oral hygiene (Kruskall-Wallis test, P<0.001), and higher scores of the Xerostomia Index (Spearman correlation coefficient, P=0.003). The multiple logistic regression analysis revealed statistically significant associations between increased root caries prevalence and active smoking (odds ratio: 3.091, P=0.012), lower saliva pH (odds ratio: 0.469, P=0.007), bubbly quality of the saliva (odds ratio: 2.274, P=0.012), and fewer teeth (odds ratio: 0.579, P=0.028).

Conclusions: Based on the findings of the present study the risk factors that significantly affected root carries prevalence in this community-dwelling older population were active smoking, a bubbly quality of the saliva, lower saliva pH and fewer remaining natural teeth.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

AW2

Development of a consensus on a standard for oral health care in care-dependent older people: An e-Delphi study

Nattida Charadram[1], Sabrina Maniewicz[1], Stefania Maggi[2], Mirko Petrovic[3], Anastassia Kossioni[4], Murali Srinivasan[5], Martin Schimmel[6], Philippe Mojon[1], Frauke Müller[1], On behalf of e-Delphi working group*

[1]Division of Gerodontology and removable Prosthodontics, University clinics of dental medicine, University of Geneva, Geneva, Switzerland
[2]CNR Institute of Neuroscience, Aging Branch, Padua, Italy
[3]Section of Geriatrics, Department of Internal Medicine and Paediatrics, Ghent University, Ghent, Belgium
[4]Division of Gerodontology, Department of Prosthodontics, Dental School, National and Kapodistrian University of Athens, Athens, Greece
[5]Clinic of General-, Special Care-, and Geriatric Dentistry, Center of Dental Medicine, University of Zurich, Zurich, Switzerland
[6]Division of Gerodontology, School of dental medicine, University of Berne, Berne, Switzerland

Objectives: This study aimed to obtain a consensus on oral health policy, access to dental care, oral hygiene measures and training levels.

Background: Poor oral health is widespread in care-dependent older people, but no consensus for a minimum standard of oral health care exists yet.

Methods: The e-Delphi approach, in which provides a platform for experts to share their opinions on a specific matter and re-consider it in the view from other experts, was applied to a selected panel of interdisciplinary experts.

In order to obtain a group of European multi-professional experts, the Academic Board of the European Geriatric Medicine Society (EuGMS) was contacted to provide a list of European physician and nurse experts with experience in geriatric medicine. The Council of the European College of Gerodontology (ECG) provided a list of dentists with expertise in gerodontology. A further list of European dental hygienists specialised in geriatric oral hygiene care was proposed by the President of Swiss Dental Hygienists and European Dental Hygienists Federation (EDHF). The invitation letter to participate in this Delphi survey was sent to a total of 60 experts (15 physicians, 15 dentists, 15 dental hygienists and 15 nurses) from various European countries of whom 32 experts (11 physicians, 14 dentists, 6 dental hygienists, and 1 nurse) consented to participate. The sole participant from the nurses' group was excluded from the analysis for statistical reasons. Finally, opinions of 31 participants (11 physicians, 14 dentists and 6 hygienists) from 17 countries were included for statistical analysis and interpretation.

In order to obtain a logical and intelligible questionnaire, a focus group of ten dentists and hygienists, working in the Division of Gerodontology and Removable Prosthodontics at the University of Geneva in Switzerland, tested the semi-structured survey. The responses and suggestions obtained from the focus group served to finalize the pilot questionnaire, but were not included in the main study.
The pilot questionnaire (semi-structured) included a total of 30 questions was established and distributed using a commercially available online survey-development tool (SurveyMonkey®, SurveyMonkey Inc., San Mateo, CA, USA). The survey was divided into four parts: (I) socio-demographic details of the participants, (II) health policy and access to dental care, (III) oral hygiene methods and tools, and (IV), knowledge and training of the stakeholders. The pilot study was repeated for three rounds until the response to a specific question achieved a frequency of >70% consensus. The final consensus questionnaire was conceived from the answers, which received 50% or more agreement in from the pilot questionnaire. These answers were now re-worded as statements. A final questionnaire contained of total 53 statements. The statements could be agreed or disagreed with, on a 5-point Likert scale (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, and 5: strongly agree). Consensus was obtained when the following three measurements could be applied:
1. >70% of the experts score between 4 and 5 (agree to strongly agree),

2. the median score > 4,
3. interquartile range < 1.

Results: The panellists agreed on 39 of 53 statements. The results commissioned to obtain a consensus for a standard in oral health care for care-dependent older people;

Health policy: At the admission to an LTC, an oral examination should be performed by a dentist, and the cost being covered by medical/dental insurances. A short, standardised report on the oral health status of the patient, including a prescription of specific preventive measures, should be part of any geriatric assessment and care plan. Subsequent dental recall visits by a dentist should take place every 6 months. Employing modern technologies like tele-dentistry should be encouraged when necessary.

Prevention: POHC should be carried out by dental hygienists or dentists every 6 months, except in particular conditions, where the recall intervals should be shorter. Positive reinforcement techniques should be used to perform oral hygiene measures when dealing with uncooperative older patients. Teeth and dentures should be brushed twice a day with a manual toothbrush and denture brush, respectively. In addition, dentures should be rinsed after each meal. When adjacent teeth are present, interdental brushes should be used regularly. The oral mucosa should be cleaned routinely with a soft toothbrush.
In case of high caries risk, 5000 ppm fluoride toothpaste should be prescribed daily. When high levels of visible plaque are present, 0.12% Chlorhexidine mouthrinse may be administered at an individualised frequency.

Denture use: At night, dentures should not be worn. Before bedtime they should be cleaned with a denture brush, immersed in a cleansing tablet solution for a short time, rinsed with water, dried, and then stored dry overnight.

Education: Undergraduate and postgraduate curricula as well as continuing education programs on oral health for older people are necessary for medical, dental and dental hygienist students and professionals. Family members of care-dependent older people should also be educated on oral health care and collaborate with the health professionals as a team.

Conclusions: Using the e-Delphi method, multidisciplinary healthcare professionals from different countries agreed on certain cardinal recommendations for a standard oral health care for care-dependent older people.

e-Delphi working group:
1. Roy L Soiza, Ageing Clinical & Experimental Research (ACER) Group, University of Aberdeen, England
2. Predrag Erceg, assistant professor of Internal Medicine and Geriatrics, Faculty of Medicine, University of Belgrade, Serbia; "Zvezdara" University Hospital, Belgrade, Serbia
3. Jurate Macijauskiene, professor, Department of Geriatrics, Lithuanian University of Health Sciences, Lithuania
4. Sofia Duque, Orthogeriatric Unit Coordinator, Internal Medicine Department, São Francisco Xavier Hospital, Occidental Lisbon Hospital Centre; Geriatrics Invited Lecturer, Preventive Medicine and Public Health Institute, Faculty of Medicine, University of Lisbon, Portugal
5. Adalsteinn Gudmundsson, clinical associate professor, Faculty of Medicine, University of Iceland, Landspitali University Hospital, Iceland
6. Sandra De Breucker , Geriatrics Department, Hôpital Erasme, Université Libre de Bruxelles, Brussels, Belgium
7. Gabriel Gold, Hopitaux Universitaires de Genève, Département of Re-adaptation and Geriatrics, Switzerland
8. Soulis George, Geriatric Outpatient Unit, Henry Dunant Hospital Center, Athens, Greece
9. Tomasz Kostka, professor, Department of Geriatrics, Medical University of Lodz, Poland
10. Nicola-Veronese, CNR Institute of Neuroscience, Aging Branch, Padua, Italy
11. Jukka Meurman, professor, Department of Oral and Maxillofacial Diseases, University of Helsinki and Helsinki University Hospital, Finland
12. Alexander Schembri, St Mark's Health Centre, Clarence Street, Msida, Malta
13. Inger Wårdh, associate professor, Department of Dental Medicine and Academic Centre of Geriatric Dentistry, Karolinska institute, Sweden
14. Päivi Siukosaari, university lecturer, Department of Oral and Maxillofacial Diseases, University of Helsinki, Finland

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

15. Barbara Janssens, Special Needs in Oral Health, Gerodontology, Oral Health Sciences, Ghent University, Belgium

16. Närhi Timo, professor, Department of Prosthetic Dentistry and Stomatognathic Physiology, University of Turku, Finland

17. Vassiliki Anastassiadou, professor, Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Greece

18. Marysette Folliguet, PU-PH, Université Paris Descartes, France

19. Joke Duyck, Department of Oral Health Sciences, KU Leuven, Belgium

20. Gerry McKenna, Centre for Public Health, Queens University, Belfast, Norhtern Ireland

21. Jacqueline Boss, President of Swiss Dental Hygienists, Sursee, Switzerland

22. Vigita Gapšienė, dental hygienist, Jonava Primary Health Care Center, Lithuania

23. Yvonne Nyblom, President of European Dental Hygienists Federation (EDHF), Stockholm, Sweden

24. Eimear Mithen, dental hygienist, private practice, Co Dublin, Ireand

25. Marketa Harantova, dental hygienist, private practice, Prague, Czech Republic

26. Anne-Claire van der Lans, President of Austrian Dental Hygienists Association, Vienna, Austria

AW3

Oral factors and adherence to the Mediterranean diet in an older Greek population

Bousiou Andrianna[1], Georgia Martimianaki[2], Eleni Peppa[2], Antonia Trichopoulou[2], Argy Polychronopoulou[3], Dimitrios Halazonetis[4], Martin Schimmel[5], Anastassia Kossioni[1]

[1]*Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece*
[2]*Hellenic Health Foundation, Athens, Greece*
[3]*Department of Preventive and Community Dentistry, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece*
[4]*Department of Orthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece*
[5]*Department of Reconstructive Dentistry and Gerodontology, School of Dental Medicine, University of Bern, Bern, Switzerland*

Background and aim: Nutritional problems are often met in older people related to multiple personal, sociomedical, and cultural factors. Many different dietary patterns have been studied concerning their benefits to overall health. The Mediterranean Diet, common in the Mediterranean area including Greece, has been shown to protect overall health and reduce mortality; it is associated with a lower risk for certain cancers, CVDs, hypertension, and obesity. It includes high consumption of olive oil, vegetables, legumes, fruits and nuts, cereals and fish, low consumption of meat, moderate consumption of dairy products, and regular but moderate intake of wine during meals.

Oral factors, such as lower chewing efficiency and small number of occluding pairs of teeth have been frequently associated with unhealthy dietary choices in older people including limited consumption of raw fruits and vegetables that are significant components of the Mediterranean Diet. Therefore, this study aimed to investigate the effect of oral factors on the adherence to the Mediterranean diet in an older community-dwelling Greek population.

Methods: The study was conducted between June 2019 and March 2020 in Open Care Community Centers for Older People in Metropolitan Athens, Greece, located in areas of different socio-economic stratification that were preselected by the research team. The only requirements for membership in these municipal centres are to reside in the area and be over 60 years of age. Members of these centres volunteered to participate after receiving detailed information on the scope and methodology of the study; all study participants signed appropriate written consent forms.
The study included oral interviews using structured questionnaires, oral clinical examination, and recordings of masticatory efficiency.

The interview recorded demographic information, smoking history, medical condition based on ICD-10 classification, drugs' intake based on the HTC classification, body mass index (BMI), dental visitation habits, dry mouth using the Xerostomia Index validated in a Greek older population, and adherence to the Mediterranean diet, using the MDI_BNC4H index. The questionnaire investigated the frequency of consumption of specific foods common in the Mediterranean area (i.e. olive oil, fruits, vegetables, red and white meat, fish and shellfish, nuts and seeds, olives, cereals, dairy products, wine).
The oral examination included the recording of the existing natural teeth, teeth mobility, number of chewing pairs, and removable prosthetic restorations' prevalence and quality.
The evaluation of the masticatory efficiency was carried out using a two-colour chewing gum (Hue-check Gum, University of Bern). The gum was chewed for 20 cycles, then placed in a transparent plastic bag and compressed on a suitable surface to flatten it to a dimension of 1mm thick. The degree of colour mixing indicated the individual's masticatory efficiency. The plastic bag with the gum was then scanned and analysed using the ViewGum software programme (dHAL Software, Greece). The results were exported into excel and further analysed. Higher values indicate lower chewing efficiency.
The study was approved by the Athens School of Dentistry Ethics and Research Committee (418/2019).

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

Statistical analysis included descriptive statistics and univariate linear regression analyses using as dependent variable the adherence to the Mediterranean Diet Score and independent variables various sociodemographic (i.e. age, sex, marital status, education, last visit to the dentist), medical (i.e. medical conditions, medications received, BMI), and dental factors (i.e. chewing efficiency, xerostomia, use of dentures, number of natural teeth, number of chewing contacts, tooth mobility). Independent variables that were statistically significantly associated with the dependent variable were further analysed using multivariable linear regression modelling. The level of statistical significance was set at p≤0.05. The analysis was performed using statistical software (STATA® 16, Statacorp, College Station, Texas, USA).

Results: A total of 130 participants, 33 men (25.4%), and 91 women (74.6%), over 60 years of age participated in the study. Their mean age was 73.9±8.5 years (range: 60-93 years). Sixty-three (48.5%) were married and 60 (46.2%) were widowed. They received 3.1±2.3 drugs per day (range: 0-13) and their BMI was 28.5±4.7 (range: 20.3-49). A total of 111 (85.4%) reported that they did not have any chewing problems. Fifty-nine (45.4%) had visited the dentist in the past 12 months.
Eighteen (13.8%) were edentulous and 72 (55.4%) used partial and/or complete dentures. The dentate had 18.7±8.3 teeth (range 1-31). Among dentate 4.0±9.4% of the remaining teeth (range 0-44.4%) presented moderate or increased mobility. The number of chewing contacts between natural or prosthetic teeth was 10.5±3.1 (range: 2-16).
The adherence to the Mediterranean Diet score ranged from 3 to 9 (5.6±1.4); 65 participants (50%) presented low adherence, 31 (23.8%) moderate, and 34 (26.2%) high. Univariate analyses revealed that the only parameters that significantly negatively affected the level of adherence to the Mediterranean Diet were chewing inefficiency (β=-1.12, p=0.05), higher number of drugs per day (β=-0.10, p=0.05), and higher BMI (β =-0.03, p=0.04). The multivariable analysis revealed that lower adherence to the Mediterranean Diet was significantly associated with higher BMI (β=-0.03, p=0.04), as well as decreased chewing efficiency (β=-1.13, p=0.04).

Conclusions: The findings of the present study reveal that increased chewing efficiency is an independent predictor of good adherence to the Mediterranean Diet in an older functionally independent community-dwelling population. More studies are necessary in larger samples to define the appropriate interventions, dental and/or dietary that may improve dietary choices in older people.

OP1.1

Implementation and assessment of an oral health education programme for formal caregivers in nursing homes

Kalliopi Konstantopoulou, Hercules Karkazis, Gregory Polyzois, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: Oral health of older adults in nursing homes is often neglected. Caregivers' inadequate knowledge and negative attitudes towards oral health and care are among the dominant barriers to residents' oral health. The purpose of the present study was the design, implementation and evaluation of an oral health education programme for formal caregivers of nursing home residents.

Methods: This was a quasi-experimental study with non-equivalent pretest-posttest control group design for formal caregivers who worked in the three units of a nursing home in the region of Attica. A knowledge and attitude questionnaire about oral health and care had been developed and initially completed by 74 caregivers (response rate 91.3%). Then, a theoretical and practical education programme about oral heath in older people was applied to the intervention group. Immediately after the implementation of the intervention, the completion of the questionnaire was repeated by 55 caregivers of both intervention and control group (response rate 67.9%). Two months after the intervention, the questionnaire was replenished by 13 caregivers of the intervention group, while the education programme was applied to the control group.

Results: There was a statistically significant increase in the total score of knowledge and attitudes in the intervention group after the implementation of the education programme compared to the pre-test measurement (Wilcoxon ranked test, paired samples test, P<0.001), as opposed to the control group. Between the two groups post-test, the total score of knowledge and attitudes in the intervention group was higher than in the control group to a statistically significant degree (Student's t test, P<0.001 and P=0.017 respectively). In the intervention group, knowledge and attitudes were maintained in the measurement recorded two months after the implementation of the programme (paired samples test, P= 0.11 and P=0.21 respectively).

Conclusions: The education programme seemed to be effective in improving and maintaining caregivers' knowledge and attitudes towards oral health of nursing home residents. Further research and education programmes are needed and oral examinations in older people should be concurrently performed in order to assess any oral health improvement after the implementation of the programme.

OP1.2

Impact of oral health education on knowledge, attitudes and practices among healthcare professionals

Sophia Yee[1], Kuan Yee Wong[1], Claudia Koh[2]

[1]*Department of Dental Surgery, Khoo Teck Puat Hospital, Singapore, Singapore*
[2]*Department of Geriatric Medicine, Khoo Teck Puat Hospital, Singapore, Singapore*

Background & Aim: Previous studies have shown a relationship between oral infections and general health complications among geriatric patients. Healthcare providers require the necessary skills and training to effectively meet the oral care needs of geriatric patients. The aim of this study was to investigate the impact of oral health education on knowledge, attitudes and practices among healthcare professionals.

Methods: A self-administered questionnaire assessed baseline oral health knowledge, attitudes and practices among medical, nursing and allied health staff from a geriatric ward in Khoo Teck Puat Hospital. An oral health education programme modelled after Forsell et al. (2011) was translated into three major components. This included knowledge base about the preventive effect of oral care on medical conditions among geriatric patients, lectures with visual material and hands-on training. A follow-up questionnaire with additional questions evaluating the effectiveness of the programme was administered one month later.

Results: 43 subjects participated in the study. Mean knowledge scores increased significantly from 63.5% to 78.1% ($p < 0.001$). Participants were more confident in providing oral care for patients and training for caregivers. There was a significant increase in confidence among participants in recognising oral diseases and the need for a dental referral ($p < 0.05$). Care-resistant behaviour remained the greatest barrier in providing oral care. The programme was favourably assessed in 81% of responses.

Conclusion: The oral health education programme was well received and resulted in improved oral health knowledge, attitudes and practices among participants. This model showed promise for further use among healthcare professionals caring for geriatric patients.

OP1.3

Project 'Don't Forget The Mouth!' to improve oral health of community-dwelling frail older people: An evaluation

Bach van Ho[1], Claar Debora van der Maarel-Wierink[2], Annemiek Rollman[1], Roxane Anthea Francesca Weijenberg[1], Frank Lobbezoo[1]

[1]*Department of Orofacial Pain and Dysfunction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and VU University, Netherlands*
[2]*Department of Medical Dental Interaction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and VU University, Netherlands*

Introduction: The project 'Don't Forget The Mouth!' (DFTM!) focuses on improving the oral health of community-dwelling frail older people, through education and interdisciplinary collaborations of health care professionals and informal caregivers. The aim of this study was to evaluate the implementation of the project DFTM! and to identify factors for success and barriers.

Methods: A process evaluation over the course of 12 months was the core of this mixed-method design study. The evaluation was focused on factors for success and barriers on three levels: the organization of the implementation (macro-level); the health care professionals who implemented the project (meso-level); and the recipients, i.e., the community-dwelling frail older people (micro-level). At baseline, after 3, 6, and 12 months, health care professionals completed a questionnaire regarding their collaboration with other health care professionals, oral health care education, and organizing dental home visits; at baseline, a screening-referral tool was filled in by the health care professional and the frail older person; and after 12 months, semi-structured interviews were conducted with the health care professionals. A non-cross-sectional approach was followed for the analysis of the questionnaire; and a thematic analysis, using a framework-based approach, was performed to analyse the semi-structured interviews.

Results: 50 health care professionals of 14 different towns in The Netherlands completed the questionnaire (general practice N=14, dental practice N=18, home care organization N=18); 407 screening-referral tools were filled in; and 22 health care professionals were interviewed (at N=22, saturation was reached and confirmed). Identified factors for success were: the use of existing care networks, the organization of regional and national meetings for the health care professionals, and the allocation of sufficient time designated for oral health care and education (macro-level); the establishment of interdisciplinary collaborations and the integration of oral health care in the health care professionals' daily routine (meso-level); and the increased oral health awareness that contributed positively to daily oral hygiene care (micro-level). Identified barriers were: increased work pressure (macro-level; and meso-level), accessibility of the oral health care professional (micro-level), and financial issues (micro-level).

Conclusions: The project DFTM! contributes to awareness of the importance of oral health among health care professionals and older people, and could provide the tools to organize nation-wide interdisciplinary oral health care for community-dwelling frail older people.

OP1.4

A qualitative analysis of dental students' perceptions towards older patients

Kyriaki Ioannidou, Eirini Basdeki, Daphne Kalyva, Ioannis Tranoulis, Anastassia Kossioni

Division of Gerodontology, Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Greece

Background and aim: The oral problems of older patients are largely underdiagnosed and undertreated because of various barriers, including negative perceptions and stereotypes among dental care providers. The aim of this study was to record the perceptions of dental students towards treating older patients.

Methods: An anonymous written questionnaire was developed including demographic information (gender, age, semester of studies) and two open-ended questions asking the students to identify up to three positive and up to three negative issues when treating older dental patients. The questionnaire was administered to all 8th and 10th semester dental students at the end of compulsory seminars after explaining the objectives of the study. Consent to participate was indicated by agreement to fill in the questionnaires. A content analysis was performed to identify the main themes associated with the positive and negative aspects when treating older patients, and the collected data were coded and allocated accordingly. Descriptive data analysis was performed.

Results: 135 students out of 153 who attended the seminars, responded to the questionnaire (response rate 88.23%). Sixty-nine (51.1%) attended the 8th semester and 66 (48.9%) the 10th. Eighty-three (61.5%) were women and 52 (38.5%) were men. The positive aspects of treating older patients were the promotion of the patients' health and quality of life (57%), the positive feedback from the patients (37.8%), the good interaction and communication (35.6%), the dentist's intrinsic reward treating older people (28.1%) and the improvement of professional dental competences when treating complex cases (7.4%). The negative aspects included communication and cooperation problems (71.1%), treatment challenges related to disease and disability (57.8%), barriers to access dental care (20%), complex and time- consuming treatment plans (14%), patients' negative beliefs about oral health (12.6%), and communication and cooperation problems with the patients' carers (3%).

Conclusions: Positive and negative perceptions towards treating older patients were identified by senior dental students. These should be considered to develop appropriate educational interventions fighting ageist behaviours.

OP1.5

Sources of information about daily oral hygiene for community-dwelling older adults

Dimokritos Papalexopoulos, Kalliopi Konstantopoulou, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: Oral health literacy among older adults has not been extensively investigated. The aim of this study was to explore the sources of oral health information among urban community-dwelling older adults' and associate them with their oral hygiene habits.

Methods: Community-dwelling older adults were interviewed and clinically examined in community centers. Their demographic characteristics, dental visitations habits, oral hygiene habits and sources of information about daily oral hygiene were investigated. The number of natural teeth and the use of removable prostheses were also recorded.

Results: One hundred and eleven participants (42 males, 69 females) with a mean age of 71.3±10.1 years were investigated. Ten percent were edentulous and 36% used complete or partial dentures. Regarding toothbrushing 44.1% of the dentate individuals had received related information from their dentist, while the others from the media, school, relatives, friends or don't remember to have received any information all. When the dentist was the main source of toothbrushing information 49% brushed the teeth more frequently than once per day compared to 32.7% when no related information from a dentist was obtained (P=0.05). Twenty seven percent of the dentate participants were informed by their dentist about the use of interdental cleaning aids and 4.5% from the pharmacist, relatives and friends. The regular use of interdental brushes was significantly associated with receiving related information from the dentist (P=0.023). Forty-three percent of the denture wearers had received denture hygiene information from the dentist; 64.7% of these individuals cleaned their dentures more often than once per day compared to 26.1% for the other patients (P=0.024) and removed them at night (82.4% and 30.4% respectively) (P=0.002).

Conclusions: This study revealed that a limited number of older persons received or retained adequate information about daily oral hygiene from a dentist. Other sources of information included relatives and friends, the media and the pharmacists, but a significant number of participants did not identify any relevant source. The poor oral hygiene habits that were frequently recorded urge the need to develop appropriate policies to improve oral health literacy among older individuals.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP1.6

Perception of the faculty and Deans about geriatric dentistry in the undergraduate and postgraduate curriculum in dental schools of India

Kamal Shigli[1], Sushma Nayak[2], Rashmi Kusurkar[3], Vasanti Lagali Jirge[4], Fadekemi Oginni[5], Jayashri Tamanna Nerali[6], Deepti Vadavi[7], Puneet Gupta[8]

[1]DY Patil Dental School, Pune, India
[2]Public Health Dentist, Bangalore, India
[3]Amsterdam UMC, Faculty of Medicine, Vrije University, Amsterdam, Netherlands
[4]Department of Oral Medicine and Radiology, KLEVK Institute of Dental Sciences, Belagavi, India
[5]Department of Oral and Maxillofacial Surgery, Obafemi Awolowo University, Nigeria, [6]Department of General Dentistry, Penang Dental College, Malaysia
[7]Department of Public Health Dentistry, DAPMRV Dental College, Bangalore, India
[8]Department of Public Health Dentistry, Government College of Dentistry, Indore, India

Background & aim: The proportion of the elderly in India is currently on the rise, being over 77 million and projected to be approximately 140 million by 2021. The management of dental problems in this population is different from the general population [1]. As a subject geriatric dentistry is yet to find its place in the Indian dental school curriculum [2]. A lack of training would result in inadequate care delivery.
Evaluation of faculty and Deans' perception could inform modification of the existing curriculum or inclusion of geriatric dentistry as a separate subject. Therefore, we sought to assess the opinions of faculty and Deans regarding the need to include geriatric dentistry in the undergraduate and postgraduate dental curricula in India.

Methods: Two focus group discussions (one each among consenting faculty (n=7) and Deans (n=6)) were held, using the focus group discussion guide structured to know their perceptions regarding geriatric dentistry in the undergraduate and postgraduate curriculum of dental schools of India. Ethical approval was obtained from the Institutional Ethics Committee. Each focus group discussion was transcribed, themes were derived and consensus was achieved among the investigators.

Results: A unanimity was achieved regarding the needs of the elderly population being different from the general population. The themes which emerged from the discussions were: structured geriatric curriculum (knowledge, clinical skills, community settings, comprehensive dental care); awareness and social responsibility (empathy, emotional quotient, life expectancy, physiological and psychological changes) and challenges to treat geriatric patients (patient compliance, medical problems, financial aid, student and staff training).

Conclusions: Faculty and Deans unanimously agreed on the need for more emphasis on teaching and assessment methods on topics related to geriatric dentistry, interdisciplinary and interprofessional collaboration in the curriculum.

]1] Shigli K, Nayak SS, Kusurkar RA, Chari S. Use "LATCHeS" to communicate with elderly patients. Spec Care Dentist. 2020;40(4):390-392.

[2] Shigli K, Nayak SS, Jirge V, Srinagesh J, Murthy V, Gali S. Current status of gerodontology curriculum in India and other parts of the world: A narrative review.
Gerodontology. 2020 Jun;37(2):110-131.

OP2.1

Dental treatment guideline for the elderly with dementia: The JSG protocols

Hirohiko Hirano[1,2], Ayako Edahiro[1,2], Shunsuke Minakuchi[1,3]

[1]*The Japanese Society of Gerodontorogy, Tokyo, Japan*
[2]*Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology, Tokyo, Japan*
[3]*Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan*

The rapidly aging society and increase of people with dementia seen in Japan is unprecedented in the world. The Japanese society of gerodontorogy (JSG) has been proactively working in pioneering research regarding the association between dementia and dental care in elderly people.

In 2015, the Ministry of Health, Labour and Welfare of Japan adopted a "Comprehensive Strategy to Accelerate Dementia Measures (called New Orange Plan)" as a new strategy to bolster measures against dementia. This plan documents the implementation of improvements in training for dementia support among dentists.

Based on the plan, JSG made "A statement of position for dental care for the elderly peoples with dementia", 2015. Our mission is to draft the guidelines for dental care for elderly peoples with dementia based on evidence and to promote the maintenance of dignity and quality of life in dementia patients. Based on the presented background, the previously stated mission statement for dental care for elderly people with dementia is representative of the current position of JSG.

Furthermore, JSG created the dental treatment guideline for the elderly peoples with dementia in 2019. The contents of the guidelines will be in accordance with the existing "Providing health care and long-term care services in a timely and appropriate manner as the stages of dementia progress" shows in the Japanese Dementia Strategy (New Orange Plan).

This presentation will include the assertions made above, as well as information on current dental care and oral function management in elderly patients with dementia in Japan.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP2.2

Critical assessment on unmet oral health care needs and oral health-related quality life among older adults

Ramya Shenoy, Roma M

Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka, India

Background: Proper planning regarding oral health promotion programs is required to prevent and treat oral health problems in older adults. This requires a critical assessment of oral health needs and its impact on oral health among this population.

Objective: To evaluate the oral health care needs and its impact on oral health-related quality of life among older adults living in old age homes.

Material and Method: A total of 96 older adults [males=32(33.33%), female=64 (66.67%] aged 60 years, and above residing in old age homes were included in this cross-sectional study. Oral health status and dental needs were assessed using Oral Hygiene Index Simplified (OHIS) and WHO Oral Health Assessment Form. Oral health-related quality of life was evaluated through the Geriatric Oral Health Assessment Index (GOHAI) questionnaire through an interview format.

Results: The mean age of the participants included in the study was 69.25 ±7.99 years. About 27.1% (26) of the participants reported with diabetes mellitus and hypertension. Most of the participants 91.7% (89) visited the dentist when they had dental complaints and 5.2% (5) had never visited a dentist. Among the dentulous study population, 84.5% (60) had caries. Periodontal therapy was needed by 94.36% (67) of the population. Amongst the participants, 70.82% (68) required the need for prosthetic rehabilitation. There was no significant difference found between the responses from male and female participants for any of the questions of the GOHAI. There was a significant difference in GOHAI response to the sensitivity of teeth amongst three age groups (p=0.039). The longer stay in old age homes and completely edentulous patients reported difficulty in swallowing (p=0.048). Edentulous patients showed more concern regarding oral health compared to dentulous patients (p=0.028).

Conclusion: Increased duration of stay in homes for aged, had affected the oral health-related quality of life by significantly affecting comfort in swallowing for older adults. There was a significant increase in the sensitivity of the teeth as age progresses, and this affected the oral health-related quality of life.

OP2.3

Quality of life of elderly maxillectomy patients restored with obturator prostheses

Ioli Ioanna Artopoulou

National and Kapodistrian University of Athens, School of Dentistry, Athens, Greece

Background and aim. Maxillary defects resulting from tumor ablative surgery present functional and esthetic issues relating to the loss of important structures. The most common rehabilitative approach is the obturator prosthesis that in most cases can restore the patient to a normal or near normal level of function. The aim of this study was to assess the overall functioning of the obturator prosthesis, as well as the effect of specific sociodemographic, medical, and treatment variables on the quality of life (QOL) of elderly maxillectomy patients.

Methods. Global quality of life (QOL) and satisfaction with the obturator prosthesis of 40 elderly patients who underwent maxillectomy and prosthetic rehabilitation at the National and Kapodistrian University of Athens (NKUA) were assessed using 3 questionnaires: EORTC QLQ-C30, EORTC QLQ-HN35, and OFS. The data were analyzed with the Kruskal-Wallis 1-way ANOVA on Ranks, hierarchical multiple regression analysis, and the Spearman rank order correlation (α=.05).

Results. Satisfactory functioning of the obturator prosthesis was the most significant predictor of improved QOL (P<.05). QOL was significantly related to additional treatments (P<.05), the size of the primary tumor (P<.05), and the size of the maxillectomy defect (P<.05). The most significant predictors of good obturator functioning were additional treatments (P<.01), , presence of mandibular teeth (P<.05), and previous maxillary removable prosthetic experience (P<.05). OFS appearance and insertion subscales (r=0.47, P<.01), followed by speech (r=0.42, P<.01), were significantly related to better QOL.

Conclusions. A well-functioning obturator prosthesis was the most significant determinant for improved QOL in elderly patients with maxillary resection. Adjuvant treatments, presence of mandibular teeth, and previous maxillary removable prosthetic experience were the most significant predictors for better obturator functioning, whereas the size of the maxillectomy defect had a significant effect on QOL but did not influence the functional outcome.

OP2.4

Oral health in dependent older adults: An exploration of views from a range of stakeholders

Julie Mcmullan[1], Sinead Watson[1], Georgios Tsakos[2], Paul Brocklehurst[3], Richard Watt[2], Rebecca Wassall[4], Andrea Sheriff[5], Sheena Ramsay[4], Danielle Logan[1], Gerald McKenna[1]

[1]Queen's University Belfast, Belfast, United Kingdom
[2]University College London, London, United Kingdom
[3]Bangor University, Bangor, United Kingdom
[4]Newcastle University, Newcastle, United Kingdom
[5]University of Glasgow, Glasgow, United Kingdom

Background and aim: Maintaining good oral health amongst dependent older adults can be challenging. In this qualitative study the views of dependent older adults, health care professionals and researchers specialising in ageing and gerodontology were sought, via interviews, on oral health care provision for dependent older adults. These interviews form part of a larger study (DECADE), which aims to develop a core outcome set for oral health services research involving dependent older adults.

Methods: Participants (n=20) were purposively recruited from a variety of sources. Dependent older adults from private care homes across Northern Ireland were invited to participate with healthcare professionals recruited via UK wide professional bodies and through links developed through collaborative working. The interviews were conducted in accordance with a protocol consisting of semi-structured open-ended questions over the telephone or face-to-face. All interviews were recorded, transcribed and uploaded to NVivo12 for thematic analysis.

Results: Several key themes were identified including the need for an increase in domiciliary provision and a lack of dedicated resources for oral healthcare for dependent older adults. Several patient reported outcomes including pain, social impact, individual quality of life and appearance were identified. Participants mentioned the resistance from care staff to engage in oral health care as an important barrier. This highlights the need for staff training and development of an appropriate skill mix to deliver high quality care and the development of oral care pathways.

Conclusions: This qualitative study gathered views on oral healthcare provision for dependent older adults from a number of stakeholders, including patients. The key messages which emerged included the need to develop training and resources for care staff, family and healthcare professionals to ensure oral health in this age group is prioritised. This study provided an opportunity for patients to have their voices heard which is essential to ensure their needs are met.

OP2.5

Exploring preferred dental services of Swiss older people for when they become dependent

Najla Chebib[1], Samir Abou-Ayash[2], Sabrina Maniewicz[1], Murali Srinivasan[3], Harry Hill[4], Gerald McKenna[5], Emily Holmes[6], Martin Schimmel[1,2], Paul Brocklehurst[7], Frauke Müller[1]

[1]Division of Gerodontology and Removable Prosthodontics, University Clinics of Dental Medicine, University of Geneva, Geneva, Switzerland
[2]Division of Gerodontology, School of Dental Medicine, University of Bern, Bern, Switzerland
[3]Clinic of General- Special care- and Geriatric Dentistry, Center of Dental Medicine, University of Zürich, Zürich, Switzerland
[4]Health and Decision Science, University of Sheffield, Sheffield, United Kingdom
[5]Health Services Research Group, Centre for Public Health, Queens University Belfast, Belfast, United Kingdom
[6]Centre for Health Economics and Medicines Evaluation (CHEME), School of Health Sciences, Bangor University, Bangor , United Kingdom
[7]NWORTH Clinical Trials Unit, Bangor University, Bangor Gwynedd , Wales, United Kingdom

Objective: The objective of this study was to explore the preferred dental services of older people for when they become dependent. It aimed to assess their preferred type of health care professional and location of dental service and relate their preferences to their willingness to pay (WTP), willingness to travel (WTT) and their probability of uptake of a given dental service.

Material and Method: Older people aged 65 years or older were invited to participate in a questionnaire-based discrete choice experiment (DCE), to measure preferences for dental examination and treatment, defined by two attributes: type of professional and location of the activity. Independently living elders were invited to participate in focus groups to state their preferences if one day they became dependent. Hypothetical choices with regards to the selected attributes were displayed in a projected visual presentation and the participants' noted their personal preference using a response sheet. Data were analyzed using random-effects logit model that allowed for multiple observations from the same respondent. The regression model estimated preference weights (β coefficient) for each attribute that indicate the importance of attributes, the direction of the effect, and the magnitude of preference. The level of significance was set at 0.01. Expected utility associated with the hypothetical scenarios was derived to estimate the probability of uptake for the most and least preferred scenarios.

Results: Ninety-two participants (51 in Bern, 40 in Geneva, mean age 73.7±6.6 years) attended the group sessions and 89 participants completed the experiment. Respondents prefer the family dentist (β: 0.2596) to the auxiliary to undertake the examination and want to avoid the medical doctor (β -0.469; P<0.001). They prefer to have the examination done in the dental practice (β: 0.2204; P=0.002) and away from home (β: -0.0467). Respondents preferred to avoid treatments at home (β: -0.3875); they had a significant preference for treatment at the dental office (β: 0.2255) or in a specialist setting (β: 0.1620). However, the type of professional did not have a significant influence on overall preference. Participants with a low WTP (≤60CHF) preferred examination at home (β: 0.2151) and wanted to avoid the dental practice (β: -0.0235), whereas those with a high WTP (≥60CHF) preferred the dental office (β: 0.4535) rather than home (β: -0.3029; P <0.001). WTT did not have a significant influence on preference. Participants with a lower willingness to pay for treatment (<200 CHF) preferred the specialist in a specialist center and those with a higher WTP ≥400 CHF had a significant preference for the dental office (β:0.2687; P=0.004). Participants' greatest preference was to avoid dental treatments at home (β<0). The WTT for examination and for treatment was not significant for all participants. When comparing the regions (Bern and Geneva), there was a significant difference in preference choices for examination and for treatment and in their WTP for examinations (P<0.001) and treatment (P=0.001). For examination, the probability of uptake of the most preferred scenario with a high WTP (family dentist at dental practice) was 82% and the probability of uptake for the least preferred scenario (doctor at home) was 18%. For treatment, the probability of uptake for most preferred scenario with a high WTP (Family dentist at dental practice) was 65% whilst the probability of uptake for the least preferred scenario (specialist dentist at home) was 35%.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

Discussion: The strength of this study is that it explored the expressed needs of those who will be increasingly affected by oral care policies as longevity further increases. DCE have been particularly useful for creating prioritization frameworks nevertheless they can be challenging as respondents are required to make a hypothetical choice. The actual match between the stated choices and the actual health care utilization represent the external prediction validity of the DCE's, the proportion of individual choices that can be correctly predicted at an individual level can reach up to 91%. The results of this study have shown that for independent older people, the family dentist was the preferred professional to conduct an examination; the participants' second option was a trained dental auxiliary. They clearly stated that they preferred not to have dental examinations conducted by the family doctor. This was reinforced by their higher WTP for the examination in the dental office and significant preference for the family dentist over the auxiliary. The preferred professional to conduct a treatment was the specialist dentist in the dental office or in the specialist center and participants in this study clearly stated that they wanted to avoid home as a location for dental treatment. This finding is in contradiction with previous research, which showed that these visits added to the patients' feeling of safety and supported their ability to live at home. Nevertheless, these results suggest that the perception of a dentist may be different to that of other caregivers like doctors or nurses who more regularly attend the patients' home. Strategies to improve uptake of dental services starting with examination and then for dental treatments should cover three domains: the capability, the opportunity and the motivation. Capability includes the knowledge and the skill set to provide care for dependent older persons. Health policy should request that dental providers complete an education module in geriatric dentistry to acquire the adequate skill sets. The opportunity relates to the social context, the resources available and the organization of access to care, public transport should be physically accessible to all, including persons of reduced mobility. Participants in this experiment have clearly stated that travel and the distance travelled was not of significant importance. The third domain relates to the motivation, presenting older people with their preference choice increases dental uptake of services as demonstrated in the results of this study.

Conclusions: The results from this DCE suggest, that the continuity of dental services from the family dentist should be prioritized, preferably at the dental practice or a dental specialist setting for dependent older patients. Health policy should identify and reduce barriers for access to care in the patient's preferred setting.

OP3.1

Demand for dental care of aged in a General Hospital in Greece

Aikaterini Dimitriou, Aggeliki Giannopoulou, John Fandridis, Flora Zervou-Valvi

Dental Department of "Asklepieion Voula's" General Hospital, Athens, Greece

Background and aim: Continuous increase of aged (over 65 years old) implies rise in the number of persons with general health problems some of whom, seek dental treatment in hospitals. The aim of this study is to define the proportion of sessions of the elderly compared to the total number of dental sessions as well as the percentage of the elderly who presented comorbidities.

Methods: Evaluation and critical analysis of the records of a General Hospital Dental Department in Greece. Sessions of persons over 65 years of age, treated at the Department during the last two years (2018-2019), were categorized according to age, sex, coexistence of general health problems and type of dental intervention.

Results: Analysis showed that;1012 sessions were referred to persons over 65 years old during the last two years. These represent 18.82 % of the total number of the sessions (5378 sessions).
Age ranged from 65 to 98 years (mean age 73.85 years).
Women outnumbered men (54% females, 46% males).
Percentage 70% of the sessions were referred to persons who also suffered from general diseases, mostly cardiovascular diseases and diabetes, 4% to persons who had dementia, and 1% to person physically, mostly kinetic, handicapped. Only 25% had no health problem.
Most of the sessions included oral surgery and restorative dentistry. Stomatological sessions consisted 24% of the total. One patient with dementia was treated under general anaesthesia.

Conclusions: Elderly presented for dental care at a Hospital Dental Department constitute a significant portion of the total of patients presented for such reason. Hospital dentist must be familiar with the appropriate management of senior citizens most of whom require special care because of the existence of comorbidities.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP3.2

Benefits of a systematic oral examination in an Acute Care Geriatrics Department

Pierre-Emmanuel Cailleaux[1,4], Françoise Tilotta[2,5], Didier Haguenauer[1], Philippe Charru[1], Marysette Folliguet[3,5]

[1]Geriatrics Department, Hôpital Louis-Mourier (Assistance Publique - Hôpitaux de Paris), Colombes, France
[2]Oral medicine - Odontology Department, Hôpital Louis-Mourier (Assistance Publique - Hôpitaux de Paris), Colombes, France
[3]International Association of Gerodontology, Paris, France
[4]Faculté de médecine - Université de Paris, Paris, France
[5]Faculté d'odontologie - Université de Paris, Paris, France

Background and aim: Malnutrition, infection and pain affect oral health in the elderly, but the access to dental care remains rare during the hospitalization. Our aim was to assess major oral health problems identified with a systematic exam in a non-referred geriatric population.

Methods: Our prospective study included all patients hospitalized in our Geriatrics department between September 2018 and May 2019. Dental examination was performed once, after patient information and agreement, during a weekly dental exam performed by a training dentist. There were no exclusion criteria. Descriptive analysis used mean and standard derivation for continuous variable and frequency for qualitative ones. Comparison used a Chi-square test.

Results: During 9 months, 429 patients were hospitalized in our center, 103 patients accepted the exam (mean age 87± 6, sex ratio: 2:1 men), performed on average during the fifth day of the stay. Only 23 % declared an outpatient a follow-up. In this cohort, 14.5% were smokers, 21% underwent a malignant bone disease or a cancer, 47% of them had a cognitive impairment. We did not identified any osteonecrosis of the jaw or endocarditis. Only one patient was under bisphosphonates whether 26.2% and 28% took respectively anticoagulation or antiaggregant therapy.
Oral examination found in average 13±10 teeth with a median number of 1 non-conservable tooth per patient. Oral pain was observed in 28.1% of patients. More than 2 over 3 patients had periodontal pathology and 25% suffered from xerostomia. We observed 16.5% of mono-maxillary prosthesis and 22.3% with a bi-maxillary prosthesis. About a half had at least one bridge, with a number of 4.28±3.03 bridged tooth.
When people with or without pain were compared, we did not observed any statistical difference in all the previous studied parameters, excepted a non-significant trend for periodontopathy (77% vs 65%, p-value = 0.09). Nearly all our patients (97.1%) needed dental care and follow-up, with critical care for 13.5% of them.

Conclusion: We assessed a disturbingly low oral health among our geriatric population, with a lack of care coordination and a high prevalence of oral pain.

OP3.3

Findings connected to the use of removable dentures among old adults living in institutional residencies

Martyna Zorawna[1], Päivi Mäntylä[1,3,4], Riitta Saarela[5], Lina Julkunen[1,2], Kaija Hiltunen[1]

[1]Department of Oral and Maxillofacial Diseases, University of Helsinki, Helsinki, Finland
[2]Clinical Dentistry, Helsinki University Hospital, Helsinki, Finland
[3]Institute of Dentistry, University of Eastern Finland, Kuopio, Finland
[4]Kuopio University Hospital, Oral and Maxillofacial Diseases, Kuopio, Finland
[5]Department of Social Services and Health Care, Oral Health Care, City of Helsinki, Helsinki, Finland

Background and aim: To establish and compare findings connected to occlusal status among older adults in institutional residencies.

Methods: Comprehensive clinical oral health examination made by professional dentist with thorough anamnesis registered by member of medical staff was done for 393 older adult residents in assisted living facilities and nursing homes of City of Helsinki, Department of Social Services and Health Care, Oral Health Care, Finland.

Results: Mean (SD) age of residents was 83.5 (8.2) years, 74.6 % were women, and 58% used removable denture. Of all residents 72.2% had moderate to severe memory disorders, 58.4% did not move independently, 47.4% needed help during eating and nearly half of all needed softened texture of food and 35.3% did not speak. In those with severe deficiency of cognition (N=135) all these listed findings were significantly more severe compared to those with good (N=149) or moderate (N=100) cognition, and only 5% (5.8) had complete but no partial denture to replace lost dentition compared to 58% (21.4) of all residents with some kind of removable denture.

Conclusions: Residents who have lost ability to use removable dentures have severe deficiency of cognition are more dependent on help of medical staff, and have clear signs of frailty. This shows the associations of signs of frailty to occlusal circumstances of old adult with poor cognition. Additional studies are underway to find the additional symptoms for oral frailty.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP3.4

A systematic review examining perception of oral health care in older population living in long term facilities

Sviatlana Anishchuk[1,2], Yvonne Howell[1,2]

[1]*Dublin Dental School University, Dublin, Ireland*
[2]*Trinity College Dublin, Dublin, Ireland*

Background: Oral health has been linked for some time to general health and systemic disease in older population in long-term care facilities (LTCF). The recent pandemic demonstrated the increased rate of coronavirus cases in the LTCF facilities in Ireland with highest death rates in them. It was suggested that poor oral hygiene is considered as a risk to covid-19 complications, particularly in patients with compromised health status.
The aim of the review was to explore the perception towards oral health care from staff of the older population living in LTCF.

Methods: The systematic search was conducted using PRISMA protocol. The search was conducted using different electronic databases PubMed, Cochrane and Wiley Online library Gerontology. Only articles written in English and published from 2010 to present were included. The following search terms were used: perception, nursing, caring staff, oral health needs, oral health status.

Results: The search identified 117 studies, from which three were duplicates. The full text of 11 studies were screened where five studies met the criteria. Two studies had qualitative and three had cross-sectional research designs. The sample sizes varied from 12 to 173 participants and were based in America, New Zealand and Sweden. The studies used either focus groups, interview based open ended questions or survey based closed questions.
There was a general consensus from the staff founding the oral health needs important however they also were not comfortable to perform with the reason of not being supported, not confident, lack of dental education or either lack of regular training. Two studies recommended interprofessional training of nursing staff ex dental hygienists, speech language therapist etc.

Conclusion: The support of the staff is required for promoting good oral health in this population. Building collaboration amongst the multidisciplinary teams can optimise oral health care in older residents living in LTCF.

OP3.5

Nurse Led Domiciliary Assessment Clinic: A service evaluation

Japarsh Gill

Community Dental Service - Sheffield NHS Foundation Trust, Sheffield , United Kingdom

Background: The Community Dental Service (CDS) in Sheffield has a large cohort of patients requiring domiciliary care. A service evaluation completed previously highlighted the benefits of a hygiene therapist completing a "domiciliary assessment" for patients prior to an appointment with a dentist. The results lead to the development of a local protocol. This provides clear guidance to follow, therefore it was suggested a designated domiciliary nurse may be able to complete these assessments proficiently. Therefore, allowing hygiene therapists more time for clinic-based activity and giving nurses the opportunity to develop extended competencies within their job role.

Aim: To ensure new patient referrals for domiciliary visits receive their dental care in the most appropriate setting. Also ensuring a seamless and efficient service is provided, by reducing the number of unnecessary appointments for both patients and clinician.

Methods: Data was captured from 17th July 2019 – 5th February 2020. Each domiciliary assessment was carried out by two dental nurses, one of which lead the assessment process.

Patient records were accessed to conclude if a comprehensive medical history was obtained prior to a dentist visit; the correct dentist grade was chosen for the patient; the correct treatment setting (domiciliary or clinic) was chosen.

Results: 52 patients were seen by both nurse and dentist allowing full analysis of data:

• Medical history – 95% of patients had a comprehensive medical history completed at the assessment visit.
• Correct clinical setting – for 90% of patients both the dentist and nurse agreed on the best treatment setting.
• Correct dentist grade – 94% of patients did not require a change in grade of dentist chosen.

Conclusions:
• All information gathered prior to the dentist appointment; choice of dentist grade; follow up decisions made by the dental nurse, were predominantly correct and believed by the dentist to be in the patients' best interest.
• These results strengthen the argument for a nurse led domiciliary assessment service for the older adult patients.
• This would more effectively use of hygiene therapists and dentists' clinical time thus reducing clinic waiting times.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

OP3.6

The impact of dental treatments on blood pressure variations

Belisa Olmo, Manuel Ribera

Universitat Internacional De Catalunya, Sant Cugat Del Vallès, Spain

Background and aim: Arterial hypertension is a pathology of high prevalence that tends to increase with age. The aim was to determine whether there are alterations in the fluctuations of systolic and diastolic blood pressure or the heart rate of normotensive versus hypertensive participants undergoing antihypertensive treatment during surgical and non-surgical dental treatments, regarding whether or not anaesthetics were used with a vasoconstrictor.

Methods: A prospective, observational, epidemiological study was conducted in a sample of 200 participants older than 65 years (100 normotensive and 100 hypertensive participants on antihypertensive treatment). Five periods for evaluation were established. Demographic information was obtained regarding whether or not anaesthetics were used (with or without a vasoconstrictor) and whether or not the participants underwent surgical treatment. The statistical analysis consisted of a doubly multivariate analysis of repeated measures for multiple dependent variables.

Results: Significant differences were observed in the evolution of systolic blood pressure, with an initial increase in participants undergoing surgical treatment and those without a vasoconstrictor. On the other hand, systolic blood pressure decreased with non-surgical treatments, but it remained stable with the use of a vasoconstrictor. Diastolic blood pressure showed no interaction effect in participants undergoing surgical or non-surgical treatments; with the use of a vasoconstrictor, it initially decreased, while in the absence of a vasoconstrictor, it increased. Heart rate initially decreased in participants undergoing surgical and non-surgical treatments and was analogous whether or not a vasoconstrictor was used.

Conclusions: During blood pressure monitoring, blood pressure variations occur, but there is no clinical repercussion in participants because once the treatment is completed, the initial values are recovered.

OP4.1

TMD patients of various age groups: A multidimensional psychological assessment

Ye Cao[1,4,5,6], Adrian Ujin Yap[1,7,8,9], Jie Lei[2,3,4,5,6], Minjuan Zhang[2,3,4,5,6], Kai Yuan Fu[2,3,4,5,6]

[1]Department of Prosthodontics, Peking University School & Hospital of Stomatology, Beijing, China
[2]Department of Oral & Maxillofacial Radiology, Peking University School & Hospital of Stomatology, Beijing, China
[3]Center for TMD & Orofacial Pain, Peking University School & Hospital of Stomatology, Beijing, China
[4]National Clinical Research Center for Oral Diseases, Beijing, China
[5]National Engineering Laboratory for Digital and Material Technology of Stomatology, Beijing, China
[6]Beijing Key Laboratory of Digital Stomatology, Beijing, China
[7]Department of Dentistry, Ng Teng Fong General Hospital, National University Health System, Singapore
[8]Faculty of Dentistry, National University of Singapore, Singapore
[9]Duke-NUS Medical School and National Dental Research Institute Singapore, National Dental Centre, SingHealth, Singapore

Background: Patients with Temporomandibular disorders (TMDs) are typically young adults and the psychological profiles of middle-aged/elderly TMD patients have not been widely examined.

Objectives: This study determined the proportion of middle-aged and older persons seeking TMD treatment and compared their level of psychological distress to younger patients.

Methods: A total of 692 subjects aged ≥18 years were recruited and divided into three age groups, namely young (18-44 years), middle-aged (45-64 years), and old (≥65 years) adults. TMD diagnoses were derived using the Diagnostic Criteria for TMDs (DC/TMD) protocol/criteria and subjects were subdivided into those with pain-related, intra-articular, and combined TMDs. The multidimensional Depression, Anxiety, and Stress Scales-21 (DASS-21) was used to evaluate psychological states of the subjects. Statistical analysis was performed with one-way ANOVA ($p < 0.05$).

Results: The majority of the TMD patients were young adults (76.3%). Middle-aged and old adults only constituted 19.6% and 4.1% of the patient cohort. Prevalence of TMD subtypes varied between the three age groups. Depression (D), anxiety (A), and stress (S) scores were as follows: Young adults – D7.34±9.34; A9.30±8.34; S11.44±10.23; middle-aged adults – D7.28±9.91; A7.79±8.74; S9.93±11.38; old adults – D8.64±10.57;A8.86±10.41;S10.79±12.72. No significant difference in psychological distress was observed among the three age groups.

Conclusion: Middle-aged and older TMD patients had similar psychological profiles to their younger counterparts. They were observed to experience moderate depression, moderate-to-severe anxiety, and mild-to-moderate stress. Psychosocial interventions should be incorporated into the management of TMD patients regardless of age.

OP4.2

Validation of the effect of xerogenic medicines on dental outcomes

Duangjai Lexomboon[1], Edwin CK Tan[1,2], Henrike Häbel[1], Johan Fastbom[1], Maria Eriksdotter[1], Kristina Johnell[1], **Gunilla Sandborgh-Englund[1,3]**

[1]Karolinska Institutet, Stockholm, Sweden
[2]The University of Sydney, Sydney, Australia
[3]Academic Center for Geriatric Dentistry, Stockholm, Sweden

Background and aim: Older adults, in particular those with dementia, often have poor oral health. In a previous study we showed that certain xerogenic medication classes increase the risk for adverse dental outcomes. The study was limited to patients registered in SveDem, (the Swedish dementia register), which restricts the external validity.
The aim of the present study was to confirm the impact of medication on the predicted risk for dental interventions by including all persons with dementia in Sweden and a matched population without dementia.

Methods: A population-based longitudinal cohort study was conducted. Individuals aged 60+ with dementia were identified through SveDem, the Swedish Prescribed Drug Register (SPDR) and the Swedish National Patient Register (SNPR), 2008-2017. Individuals without dementia (control cohort) were selected, matched on age, gender and county of residence at the date of diagnosis (index date). Data was linked with seven national registers. Exposure was defined as continuous use of xerogenic medicines during 3 years before index date. The primary outcome was the combined number of tooth extractions and restorative procedures during 3 years after index date. Poisson regression models were used to estimate incidence rate ratios (IRRs) for the association between the exposure and outcomes, adjusting for relevant confounders.

Results: In total 334,000 individuals were included, with a matching ratio of 1/2.5. In the patient cohort, the use of urological drugs (incidence rate ratio [IRR] 1.08, 95% CI 1.03-1.13), respiratory medicines (IRR 1.10, CI 1.04-1.17) and proton pump inhibitors (IRR 1.09, 95% CI 1.05-1.13) were associated with the outcome, after adjusting for potential covariates. The corresponding medications in the control cohort were respiratory medicines (IRR 1.03, CI 1.00-1.05), proton pump inhibitors (IRR 1.06, CI 1.04-1.08), opioids (IRR 1.05, CI 1.03-1.07) and antidepressants (IRR 1.06, CI 1.04-1.08).

Conclusions: Respiratory medicines and proton pump inhibitors were associated with the primary outcome in both cohorts. In addition, opioids and antidepressants were significantly associated with the outcome in the control cohort, and urologicals in the patient cohort. Albeit differences in prescription patterns, the model performed similarly in both groups. A tendency towards higher IRRs was observed in the patient cohort.

OP4.3

Systematic review of the association between periodontitis and cognitive impairment in dependent older adults

Nicola Holland[1], Sinead Watson[1], Claire McEvoy[1], Bernadette McGuinness[1], Lewis Winning[2], George Tsakos[3], Paul Brocklehurst[4], Murali Srinivasan[5], Gerry McKenna[1]

[1]*Centre for Public Health, Queens University, Belfast, United Kingdom*
[2]*Dublin Dental University Hospital, Dublin, Ireland*
[3]*University College, London, United Kingdom*
[4]*Bangor University , Bangor, Wales*
[5]*University of Zürich, Zürich, Switzerland*

Background: The aim of this systematic review was to assess the associations between periodontitis and cognitive impairment amongst dependent older adults.

Methods: Studies written in English language and published between 1946 and 2020 were identified by searching of various databases using medical subject headings and relevant keywords. These databases included PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane Central Register of Controlled Trials (CENTRAL), Embase, Web of Science, psycINFO and Scopus.
Publications identified in the search were exported to the Mendeley reference manager for application of the pre-specified eligibility criteria.
In order for a study to be included in the review participants must have been aged 65 years or older, clinically diagnosed with periodontitis and dependent on others for care.

Results: Dependent older adults have been seen to have poorer oral health than their community dwelling peers. This older cohort tend to be more physically dependent, cognitively impaired and often have complex medical needs. The difficulties seen in achieving adequate oral hygiene in individuals with cognitive decline can lead to a higher incidence of periodontitis. Studies have also shown links between high levels of inflammatory markers and an increased risk of cognitive decline. Cross-sectional relationships were seen between having periodontal disease, and dementia or cognitive impairment. There were also weak indicators that improved oral hygiene and regular dental review could reduce the rate of cognitive decline. However, it is important to note that often the direction of causation was difficult to determine.

Conclusions: The link between oral health and cognitive impairment has been of increasing interest in recent years. Future trends indicate the likelihood of global population ageing and it is also expected that increasing numbers of older people will be dependent on others for care. Due to various degrees of cognitive impairment, dependent older adults are likely to be reliant on carers, particularly with regards to maintaining their oral hygiene. Research is a key element in the development of public health initiatives targeted at this older and vulnerable sub section of the population.

OP4.4

Oral health and functional capacity of centenarians

Caroline Sekundo[1], **Eva Langowski[1]**, Samuel Kilian[2], Cornelia Frese[1]

[1]*Clinic for Oral, Dental and Maxillofacial Diseases, University Hospital Heidelberg, Heidelberg, Germany*
[2]*Institute of Medical Biometry and Informatics, University of Heidelberg, Heidelberg, Germany*

Background and Aim: The increasing number of elders retaining natural teeth present new challenges for preventive and restorative dental care. The aim of this population-based study was to identify the prevalence of oral diseases, therapeutic needs and functional capacity in centenarians.

Methods: Subjects born before 1920 were recruited from population registries in South-Western Germany, providing information on oral health behaviors and undergoing dental examination. A total of 55 centenarians participated (mean age =101.2±1.57, 84% females). Results were compared to epidemiological data on seniors aged 75-100 years examined in the Fifth German Oral Health Study.

Results: Adherence to recommended dental behaviors was lower in the centenarian population. With the exception of a lower Root Caries Index, centenarians showed a higher caries experience, with a mean DMFT of 25.2±3.9, DMFS of 111.0±21.8, root caries prevalence of 34.5% and level of refurbishment of 54%. Centenarians' functional capacity was also considerably lower. Non-existent or greatly reduced treatment capabilities and oral hygiene capabilities were registered in 63.7% and 43.6% of cases, respectively. Centenarians with lower educational level (p=0.016), in a care facility (p=0.045) or in need of nursing care (p=0.001) had a lower functional capacity. 98% of centenarians received help in their daily activities but only 13% in oral hygiene.

Conclusions: Although most centenarians still have natural teeth, a decline of oral health compared to younger elders can be perceived. This is problematic as most can no longer endure dental treatment. Moreover, assistance in daily oral health care is rare and compliance with recommended behaviors is limited.

OP4.5

Assessed and perceived oral health of older people who visit the dental practice

PC Bots-VantSpijker[1,2], C.D Van der Maarel-Wierink[2,3], J.M.G.A. Schols[2,4], J.J.M. Bruers[1,5]

[1]Department of Social Dentistry and Behavioural Sciences, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit, Amsterdam, Netherlands
[2]Flemish-Netherlands Geriatric Oral Research Group (BENECOMO), Ghent, Belgium
[3]Center for Special Care in Dentistry, Amsterdam, Netherlands
[4]Caphri/Department of Family Medicine and Department of Health Services Research, Maastricht University, Maastricht, Netherlands
[5]Royal Dutch Dental Association (KNMT), Utrecht, Netherlands

Objectives: To assess the oral health of older people who visit the community dental practice from both the dentists' and the patients' perspective.

Materials and Methods: In this cross-sectional study the oral health of older people in the Netherlands who visit the dentist was examined using an inventory for respectively the older patient as the dentist. The oral health of older people was described in a measure derived on the definition of oral health from the World Dental Federation (FDI) from both the dentist's and the patient's perspectives.

Results: In total, 923 dentists were asked to participate in the study; data was available for 364 (39.4%) dentist-patient pairs. Dentists assessed the oral health of older patients as good or acceptable in 51.4% of the cases while this was the case in 76.2% of older patients themselves. The assessment of dentists gets more negative with high treatment intensity and with having certain diseases and higher use of medication, while the assessment is more positive for older patients who visit the dentist on a regular basis.
Older people's assessment of their own oral health gets more negative by being female and with high treatment intensity.

Conclusions and Clinical Relevance: Being chronically ill or not, as expressed by having certain diseases and the use of medication, seems to be determining factors for oral health. Older patients themselves assess their oral health differently, mostly more positive, than their dentist.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

OP5.1

A prospective cohort on the incidence of fractures in single-implant mandibular overdentures

Marcella Paula[1], Tulio Nogueira[1], Joyce Cardoso[1], Gerald McKenna[2], Claudio Leles[1]

[1]*School of Dentistry, Federal University of Goiás, Goiânia, Brazil*
[2]*Centre for Public Health, Queen's University, Belfast, Ireland, United Kingdom*

Background and aim: Denture fracture is one of the most common complications in prosthodontics and implant overdentures are reported to be at higher risk of fractures. The aim of this study was to assess the incidence and factors associated with the occurrence of fractures in patients treated with a single implant mandibular overdenture (SIMO) opposed by a conventional maxillary complete denture.

Methods: A cohort of 152 patients, 65.1% female, mean age 65.4±8.5 year, were prospectively followed-up for 1 to 5.6 years. Baseline treatment consisted of a construction of a new set of conventional complete dentures, followed by the insertion of a SIMO on the midline to retain an overdenture. Three different types of implant/attachment systems were used: Straumann ball abutment and gold elliptical matrix (n=37), Neodent ball/nylon matrix (n=83), or Neodent Equator/nylon matrix (n=32). The loading protocol included cases with either immediate, early, or conventional loading. Fracture was defined as a complete separation of denture parts and classified as midline fracture or elsewhere. No metal reinforcement was incorporated into the overdenture. Incidence rates, life table analysis, Kaplan-Meier, and Cox regression were used for data analysis.

Results: Overdenture fractures occurred in 49 patients (32.2% incidence), with repeated fractures in 16 patients. The majority of fractures were associated with function (42.6%) or due to the overdenture being dropped (36.8%). Overall incidence density was 0.14 fracture/patient/year. The most frequent fracture site was the midline region (86.8%). The ratio of terminal events across the time interval reveal fracture rates ranging from 0.15 to 0.21 (15–21%) until the 4-year follow-up interval, and a decrease in the following years. The probability of a patient having a fractured overdenture during the annual intervals from 0 to 4 years of follow-up ranged from 0.012 to 0.010, and decreased to 0.003 from 5 to 6 years of follow-up. The risk of fracture was associated with the duration of the overdenture use (HR=0.84; 95%CI=0.71–0.99).

Conclusion: Midline denture fracture was a common complication in patients receiving SIMO treatment regardless of the implant / retention system. The use of metal reinforcement may be considered to reduce the risk of fractures.

OP5.2

Use of a single short (7 mm) implant to retain an overdenture in patients with extremely resorbed mandibles: A 1-year prospective study

Túlio Nogueira, Lucas Ala, Fillipe Dias, Cláudio Leles

Federal University of Goiás, Goiânia, Brazil

Background and aim: Single-implant mandibular overdenture (SIMO) is the minimal approach for edentulous subjects who require implant intervention. However, no previous study assessed its effectiveness in borderline cases with a potentially poor prognosis due to severe alveolar bone resorption. Hence, the aim was to assess the effectiveness of the use of a single short implant to retain a SIMO in subjects with severely atrophic edentulous mandibles.

Methods: A consecutive sample of 18 edentulous subjects, mean age 65.0±12.1 years, 14 (77.8%) female, with severely resorbed mandibular ridges (ACP/PDI class IV), and sufficient bone height in the symphyseal region to receive a 7mm height implant. First, patients received new conventional dentures or had their dentures relined, followed by insertion of a 3.75x7mm morse-taper implant (Titamax-CM Cortical, Neodent, Brazil), and incorporation of a stud-type attachment with a nylon retentive insert (Equator-CM, Neodent, Brazil) after a 3-month healing period. Implant stability quotient (ISQ) was measured at implant insertion and after 3 and 12 months of SIMO use. Patient-reported outcomes (satisfaction and OHIP-Edent) were assessed before implant placement and at the 3-, 6- and 12-month follow-ups. Clinical and radiographic outcomes, and incidence of prosthodontic complications were assessed throughout the follow-up period. Descriptive statistics, paired 2-group tests, and generalized estimating equations modeling were used for data analysis.

Results: Implant survival rate was 100%. ISQ increased from baseline (72.8±1.5) to the 3-month (82.0±0.76) and 1-year (85.4±0.68) follow-ups (p<0.001). After 1 year, mean satisfaction with the mandibular prosthesis increased by 50.3% and OHIP-Edent decreased from 11.5 to 4.4 (p<0.01). Significant model effects of the time variable were found for the OHIP-Edent (p=0.007), and satisfaction with the mandibular denture (p<0.001). No effects were found for the maxillary denture (p=0.420). Due to dissatisfaction with treatment, two participants (11.1%) demanded additional implants after the 1-year follow-up.

Conclusions: SIMO retained by a short implant showed favorable outcomes after 1 year, and may be regarded as a suitable treatment option for patients with severely atrophic mandible. It was also a reversible treatment for dissatisfied patients who require additional implants for improvement in retention and stability of the mandibular prosthesis.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

OP5.3

Abutment survival and complication frequency in root-cap retained overdentures with precision attachments after 3 - 15 years in situ: A retrospective clinical study

Adrian Weber[1], **Samir Abou-Ayash[1]**, Anja Katrin Stalder[1], Camille Henriette Berger[1], Caroline Arnold[1], Martin Schimmel[1,2]

[1]*Department of Reconstructive Dentistry and Gerodontology, University of Bern, Bern, Switzerland*
[2]*Division of Gerodontology and Removable Prosthodontics, University of Geneva, Geneva, Switzerland*

Introduction: The improvements in oral health and prevention strategies have led to an increasing number of people that maintain their teeth into advanced old age. However, remaining teeth often have undergone endodontic treatment and/ or have a reduced periodontal attachment, resulting in an unfavorable crown-root ratio, and consequently at a higher risk for tooth-loss when they serve as abutments in clasp-retained removable partial dental prostheses. One of the strategies to reestablish a more favorable crown-root ratio is to shorten the clinical crown. Subsequently, teeth with shortened crowns can serve as abutments in root-supported overdentures (RODs), but the existing evidence on RODs is limited. Therefore, the current retrospective clinical study analyzed the clinical outcomes (abutment survival, technical, and biological complications) of RODs with cast post-and cores (root-caps) with precision attachments, with respect to various patient- and prosthesis-related factors.

Methods: Patients who had received at least one root-cap retained ROD since 2002 at the School of Dental Medicine, University of Bern, were invited for comprehensive clinical evaluation. They were asked to complete a general- and dental history, as well as a dental hygiene questionnaire. The dental- and stomatological status, O'Leary plaque index, and prosthetic conditions were recorded on standardized forms. Additionally, the participants were interviewed, and the patient records were screened for any biological or technical complications that have occurred, since ROD delivery. The potential influence of smoking habits (yes vs. no), dental/ prosthetic status in the opposing jaw, recall frequency (<6months vs. 1-2 years vs. never), the adjuvant use of chlorhexidine (CHX) containing mouthwash or gel (yes vs. occasionally vs. never), the number of abutment teeth (≤3 vs. >3) at the day of ROD delivery, the ROD design (open vs. closed), denture cleaning and tooth brushing habits (<2 vs. 2□/ day), denture wearing habits (during the day vs. day-and-night), the denture fabrication setting (pre- vs. post-graduate clinic), the plaque index (≤40% vs. >40%), and the denture location (maxilla vs. mandible), on the abutment survival and complication frequency were analyzed.
Abutment survival was analyzed with the total number of abutment teeth as the reference, including Kaplan-Meier estimators, Cox regressions and Hazard Ratios (HRs). The complication frequency was analyzed with the total number of RODs as the reference, using the exact Fisher test, to test the independence of complications and influencing factors. The resulting p-values and Odds Ratios (ORs) were adjusted for the number of abutment teeth per ROD with a logistic regression analysis. Finally, a multivariate analysis with logistic regression was applied, identifying factors that increase the overall complication risk.

Results: Five-hundred and eleven patients treated with RODs were identified; of those, 114 patients with 128 ODs (55 mandibular and 73 maxillary RODs), originally retained by a total of 280 abutments for a cumulative total exposure time of 2035.4 years, were examined. Of the participating patients, 42.1% (n=48) were females and 57.9% (n=66) males, with a mean age of 70.0 years (SD 8.6, min. 42.9, max. 88.4) at the time of the examination. The RODs were supported by either one (22.7%), two (47.7%), three (18.8%), four (10.2%), or five (0.8%) abutment teeth (mean: 2.2□0.9).
After a mean observation period of 7.9±3.4 years, 27 abutment teeth (9.6%) were lost. The reasons for abutment tooth loss were root fractures (n=8), caries (n=5) post fractures (n=4), endodontic lesions (n= 2), and perio-endo lesions (n=2). In six cases, the reason for tooth loss could not be identified. Significant factors associated with abutment loss were closed, compared to an open ROD design (HR:8.38, (p=0.040)), irrespective of the number of abutments per ROD. Furthermore, the loss rate was higher when the denture was not worn day-and-night (HR:3.52, p=0.012). No further factors influencing abutment tooth survival could be identified.

At least one complication occurred in 80.5% of all dentures, which means that only 19.5% of the dentures were free from any complications. The most frequent technical complication was matrix loosening (50.1%), and the most frequent biological complication was denture stomatitis (38.3%). The multivariate logistic regression analysis demonstrated a significantly higher risk for denture stomatitis in subjects brushing their teeth less than twice a day (OR:6.86; $p<0.001$), using CHX containing products occasionally (OR:4.66; $p=0.006$) or daily (OR: 3.92; $p=0.015$) compared to never, and in maxillary RODs (OR: 2.85; $p=0.016$). Complications were more frequently observed in RODs made in the pre-graduate clinic compared to the post-graduate clinic (OR: 2.83; $p=0.023$). The exact Fisher test revealed that post fractures were significantly more frequent in mandibular RODs ($p=0.032$). However, post fractures were only observed in RODs with one or two abutments. Furthermore, post fractures (no fracture in day-and-night wearers; $p=0.008$), and decementation of the root-caps (OR:0.22; $p=0.005$) were significantly more frequent in RODs worn only during daytime. The presence of denture stomatitis was significantly higher in the maxilla (OR:2.32; $p=0.029$), and in subjects cleaning their RODs less than twice a day (OR:4.76; $p<0.001$;). Stomatitis tended to occur more frequently in subjects, wearing dentures with a closed design, however without being statistically significant (OR:2.32; $p=0.089$;). Abutment tooth caries (OR:3.93; $p=0.037$) were observed significantly more frequently in denture sites with a plaque index >40%. No further factors influencing the frequency of technical and biological complications could be identified.

Key Conclusions: Within the limitations of the retrospective study design, it can be stated, that root-cap retained overdentures (RODs) with precision attachments are a viable treatment option in partially dentate subjects. RODs demonstrate satisfactory clinical outcomes, even over long-term periods, especially in terms of abutment survival. However, frequent technical and biological complications may be expected. An open denture design, as well as well-established oral hygiene, may prevent biological complications. Furthermore, the open design seems to be beneficial for abutment survival independent of the number of abutment teeth. However, a minimum number of three abutments seems beneficial, possibly preventing post fractures. Day-and-night denture wearing may reduce abutment loss, the frequency of root-cap decementation, and post-fractures, but should only be recommended in subjects with excellent oral and denture hygiene routines. The use of CHX containing products should not be recommended for routine domestic oral hygiene.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP5.4

Orthodontic treatment approach in periodontally susceptible elderly patients

Frantzeska Karkazi, Petros Papaeftymiou, Fulya Özdemir

Department of Orthodontics, Marmara University, Istanbul, Turkey

Background & Aim: Epidemiological data reveal that the prevalence of chronic periodontal disease increases with age. The loss of interproximal attachment, in such patients, leads to pathologic tooth migration and it is clinically seen as extrusion, proclination, rotation, diastema, or drifting into the edentulous spaces. Due to that, elderly-periodontal patients, often undergo orthodontic treatment either to improve the appearance of their teeth or to facilitate the masticatory function. The aim of this research is to review the relationship between elderly periodontally compromised patients and orthodontic treatment, as well as, to present a treatment scheme to facilitate the coordination of the orthodontic treatment of such patients.

Methods: A research was conducted using seven databases (PubMed, Web of Science, Cochrane, Scopus, Google Scholar, Proquest, and Clinicaltrials.gov) from inception until June 2020, corresponding to articles, which focus on the therapeutic protocol of combined orthodontic-periodontal treatment.

Results: A different orthodontic treatment approach is required for such patients, in terms of treatment manner, stabilizing anchorage systems, force systems, retention, and plaque control during treatment. Hyalinized zones in the elderly are formed more easily on the pressure side of an orthodontically moved tooth, and these zones might temporarily prevent the tooth from moving in the intended direction. Besides, in periodontal patients due to the loss of alveolar bone, the center of resistance of the involved teeth moving apically, and the net effect is that teeth are more prone to tipping than to moving bodily. Therefore, treatment is often limited to different types of tooth alignment. Thus, in such cases, a continuous periodontal screening of patients should be performed prior to and during treatment so that no acute findings are overlooked.

Conclusions: The proper tooth position enables the stability of periodontal tissues. Thus, orthodontics should be considered as a part of the treatment of elderly compromised periodontal patients in order to improve the possibilities of saving and restoring a deteriorated dentition.

OP5.5

Pre-prosthetic orthodontic treatment in elderly patients

Petros Papaefthymiou[1], Maria Antoniadou[4], Frantzeska Karkazi[1], Nuraj Yılmaz[1]

[1]Department of Orthodontics, Marmara University, Istanbul, Turkey
[2]Dental school of Athens, National and Kapodistrian University of Athens, Athens, Greece

Background & Aim: In recent years due to the gradual increase of the world's population life expectancy, there has been a remarkable increase in the number of elderly patients requesting oral rehabilitation. For many patients, pre-prosthetic orthodontic procedures are essential, in order to achieve both esthetic and functional goals of dental rehabilitation performing a minimally invasive approach. The aim of this review is to provide an updated review of the current literature concerning the aspects of pre-prosthetic orthodontic treatment in elderly patients.

Methods: A literature search was performed using seven databases (PubMed, Web of Science, Cochrane, Scopus, Google Scholar, Proquest, and Clinicaltrials.gov) from inception until May 2020, corresponding to articles which investigate the multidisciplinary approach of treating elderly patients and focusing in the orthodontic treatment modalities prior to prosthetic rehabilitation.

Results: Pre-prosthetic orthodontic intervention involves mainly treating dentitions partially edentulous or with missing multiple teeth, substantial vertical overbites, worn anterior dentition, root caries, uprighting of tipped molars and orthodontic extrusion for crown lengthening.

Conclusions: This review demonstrates that orthodontic treatment of the elders is achievable and can improve aspects of both function and esthetics, enhancing their quality of life. The recognition of aesthetic and functional goals in multidisciplinary cases poses a remarkable challenge for clinicians, which could be overcome by the interaction of specialists in various fields of dental science. Finally, diagnostic wax-up could be characterized as a fundamental tool in pre-prosthetic orthodontics, as it enables the clinician to perceive the final treatment outcome.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

OP6.1

Diet coaching approach in independent elderly for better oral health

Maria Antoniadou[1], Frantzeska Karkazi[2], Theodoros Varzakas[3]

[1]*National and Kapodistrian University of Athens, Athens, Greece*
[2]*Marmara University, Instabul, Turkey*
[3]*University of Peloponnese, Kalamata, Greece*

Aim: Health related behavior based on diet is an important determinant of oral health in independent elderly. Aging impairs senses, mastication, oral status and function, causing nutritional needs and diet insufficiencies that contribute to a vicious circle of impairment. This study aims to focus on modern diet coaching approaches in independent elderly for better oral health.

Material and Methods: A literature search was performed using seven databases (PubMed, Web of Science, Cochrane, Scopus, Google Scholar, Proquest, and Clinicaltrials.gov) from inception until April 2020, corresponding to articles which investigate the multidisciplinary approach of coaching senior patients, techniques and methods for more healthy nutritional behaviors of elders.

Results: The present needs of independent older adults suggest that health research and oral health care should shift from disease management and therapy, to integral customized and personal treatment plans, including lifestyle, psychological, nutritional and oral health coaching approaches.

Conclusions: Oral health coaching is proven to be a modern senior patient-centered approach that needs to be incorporated in all relevant settings. It should aim to empower older adults in co-management of their oral diseases or bad diet habits. This can be carried out through an incorporated educational plan for dentists either at the postgraduate or professional level since advantages seem to enhance the quality of life of the independent elderly.

OP6.2

The impact of denture-wearing status on nutrient intake among middle- and older-aged adults in the UK Biobank cohort

Sinead Watson[1], Julie McMullan[1], Jayne Woodside[1,2], Gerald McKenna[1]

[1]Centre for Public Health, Queen's University Belfast, Belfast, United Kingdom
[2]Institute for Global Food Security, Queen's University Belfast, Belfast, United Kingdom

Background and aim: Older adults are susceptible to tooth loss, which may lead to impaired mastication and impact on food choices. Although dentures are typically prescribed for improving masticatory functions, some denture wearers may find their biting and chewing ability are still less efficient than those with natural teeth. This may limit people's ability to eat important foods, potentially leading to suboptimal nutrient intakes. The aim of this study was to examine if denture-wearing status has an effect on nutrient intake in a large sample of middle- and older-aged (40 to 69 years) adults.

Methods: A cross-sectional analysis was conducted on UK Biobank data. Multiple 24-hour recalls captured dietary intake. A touchscreen questionnaire collected socio-demographic, lifestyle and oral health information, including denture-wearing status. Multiple regression analysis was undertaken, with nutrient intake as the outcome and denture wearing status as the explanatory variable. All models were adjusted for age, gender, ethnicity, Townsend Deprivation Index, living status, energy intake (kcal), smoking and alcohol drinking status.

Results: The mean (SD) age of the sample (n=55,303) was 56.1 (7.94) years. Approximately, 12% reported wearing a denture. Denture wearers compared with non-denture wearers were older (61.0 [6.32] vs. 55.4 [7.89] years; $P<0.001$) and had a higher mean BMI (27.92 [4.83] vs. 26.80 [4.61] kg/m²; $P<0.001$). Denture wearers compared with non-denture wearers had significantly higher mean intakes of energy, saturated fat, carbohydrate, starch, total sugar, vitamin B6 and calcium, and had significantly lower mean intakes of fat, polyunsaturated fatty acids, folate, vitamin B12, vitamin C, vitamin D, vitamin E, Iron, potassium and magnesium ($P<0.05$). Denture status did not impact on protein, dietary fibre, retinol and carotene intakes.

Conclusion: Within this sample of middle- and older-aged adults, wearing dentures appears to influence the intake of important nutrients. Further analysis will examine the impact of denture status on the diet as a whole using dietary pattern analysis.

OP6.3

Do nutritional interventions aimed at frailty prevention include oral health components? A systematic review of interventional studies

Faisal Hakeem[1], Roberto Carlos Castrejón-Pérez[2], Paula Moynihan[3], Gerry McKenna[4]

[1]*King's College London, London, United Kingdom*
[2]*Geriatric Epidemiology Research Department, National Institute of Geriatrics, Mexico City, Mexico*
[3]*The University of Adelaide, Adelaide, Australia*
[4]*Queen's University Belfast, Belfast , United Kingdom*

Background: Frailty is defined as the product of excessive demand imposed at a diminished capacity and is prevalent amongst older adults. Several studies suggest effective nutrition as one of the most important components in the prevention of frailty. Evidence indicates that oral conditions are an important determinant of nutritional intake in old age. The evidence also indicates that oral health is associated with frailty on both the cross-sectional and prospective levels. However, it is not known if oral conditions are included in nutritional interventions aimed at preventing frailty.

Objectives: To undertake a systematic review investigating whether nutritional interventions aiming to prevent frailty include oral health components. To identify which oral health measures or conditions are included as part of the nutritional interventions aiming at preventing or improving frailty status.

Methods: Two databases (MEDLINE and Cochrane library) were searched for published literature up to June 2020 using pre-specified search strategies. Grey literature was searched using OpenGrey and Google Scholar. Quality of included studies was examined using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) tool.

Results: Twenty-five studies including multidimensional/nutritional interventions aimed at improving frailty were identified. Of these, only two included oral health components within the multidimensional interventions. Both of these studies were conducted in Japan. Oral measurements included were oral function care, and oral care (tongue exercise, salivary gland massage, deglutition, an articulation exercise, and oral hygiene).

Conclusion: This systematic review demonstrates that oral health is an overlooked component among interventions aimed at improving and preventing frailty status.

OP6.4

Brushing teeth in patients with reduced oral hygiene by trained layperson staff - A randomized-controlled intervention study

Anna Greta Barbe, Aya Al-Barwari, Michael Noack

University of Cologne, Cologne, Germany

Objectives: The aim of this clinical longitudinal randomized parallel group intervention study was to describe the success of plaque reduction depending on the qualification of third-party layperson versus dental professional brushing staff and depending on the toothbrush selection.

Methods: Periodontitis patients (N=40) with reduced domestic oral hygiene undergoing anti-infective therapy were randomly assigned to four focus groups (layperson-manual toothbrush, layperson-electric toothbrush, dental professional-manual toothbrush, dental professional-electric toothbrush) and the plaque reduction (Quigley-Hein-Index, marginal Plaque Index) and gingivitis (papilla bleeding index) during the therapy regime and the time slots (seconds) applied were investigated.

Results: Tooth brushing by third-parties could reduce the plaque amount to 59% (QHI) and 58% (mPI).The participants' own plaque reduction of 42% could be increased to to 82% (QHI) and 80% (mPI) when external brushing was added. When device and qualification are taken into account, no significant influence of the device (p=0.399) or the profession (p=0.790) on achieved plaque reduction could be shown. The multivariate model shows a statistically demonstrable difference in the external cleaning time between the brushing groups, with the layperson cleaning longer (p = 0.002). In addition, there is also a statistically demonstrable difference in the external cleaning time between the toothbrushes with regard to the time used (p = 0.024), with the electric toothbrush being used longer.

Conclusions: With decreasing personal daily oral hygiene ability depending on general health risk factors, third-party brushing by dental professional and layperson staff could help to fill the emerging dental care gap. A combination with further oral hygiene approaches adapted to the individual need of the patients will be necessary.

OP6.5

Role of sialic acid in detection of disease in elders – A scoping review

Ana Akhtar

Pitie Salpetrière Charles Foix Hospital, Paris Sorbonne, France

Background and aim: Sialic acid (SA) has been considered as a potential biomarker in many studies. Its role has been well established in detection of viral infections, cardiovascular diseases, oral malignancies, and undernutrition. SA is also considered as an essential nutrition for brain development and cognition. However, limited studies have been conducted regarding the potential role of SA specifically in elderly population. This review aims to evaluate the role of sialic acid for older adults and its role in disease detection.

Methods: Articles were selected following PRISMA guidelines. Key word strategies utilized for selection of articles were ''Sialic acid '' AND ''Chronic diseases '' & ''Sialic acid'' AND ''Elderly'' Databases of Google Scholar and PubMed were utilized for selection of articles. Cross references were also added to the final compilation. Studies were included with patient age more than 60 years or where the mean age of patients were more than 65 years.

Results: The literature search provided 13 articles which met the inclusion and exclusion criteria. Apart from 4 review articles, studies were focused on diseases like COPD, Type 2 Diabetes, Avian influenza virus, Liver diseases. Review is presented qualitatively and thematically.

Conclusions: Sialic acid deficiency has been reported in saliva proteins, brain gangliosides, and specific immune cell components in older adults. The reasons leading to decreased sialylation were not clearly understood. Elders are often said to be having sialic acid deficiency, and this deficiency is also reported in dementia, memory impairment disorder and brain oxidative stress.
SA augmented diet for elders have been proposed in a study. SA is believed to play conserved role in postnatal development; hence it is suggested that addition of SA can lead to improvement in synaptogenesis in elderly patients and ameliorate their memory impairments.
This review also observed that salivation and muscle function are equally affected in disorders such as COPD, xerostomia, dysphagia, gastroesophageal reflux disease and chronic constipation which are frequently seen in elders. Future studies should be focused to establish the efficacy of salivary sialic acid in diagnosis and disease progression in elder patients.

OP7.1

A conceptual framework for facial ageing using primary dimensional descriptors

Ioanna Yiallouridou[1], Vassiliki Anastassiadou[1], George Menexes[2], Petros Koidis

[1]Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece
[2]Department of Informatics in Agriculture, School of Agriculture, Faculty of Agriculture, Forestry and Natural Environment, Aristotle University of Thessaloniki, Thessaloniki, Greece

Background and aim: Anthropometry is a valuable scientific tool of quantitative measurements and proportions of the human body used in dentistry along with other sciences. Anthropometric measurements are used either to assess the composition of the face as a part of the human body or for identification of understanding human physical variation to correlate primary facial dimensional descriptors of body size and shape. Furthermore, they implement useful services to compare an individual's current data either with previous data or with relevant predictive norms and racial traits or where data about the distribution of body dimensions in populations are applied, to optimize treatment options and outcomes. The anthropometric standards derived from adult populations may not be appropriate for older people due to body composition changes occurring during ageing. In this view, anthropometric facial characteristics and their relationship to gender and age are of relevant scientific interest in clinical and epidemiological studies due to alterations of bone, muscles and adipose tissue, which may further be aggravated by tooth loss.

The present study aimed to: (a) identify primary facial dimensional descriptors, (b) classify and group adults regarding similarities of form and shape, and (c) provide guidelines based on biophysical attributes to an attractive treatment outcome enhancing overall health and quality of life in patients with a history of trauma, disturbed skeletal proportions, malocclusion due to oral disease and tooth loss.

Methods: In total, 58 adults, 33 males (56.9%) and 25 females (43.1%), with an age range of 26-79 years participated in this study. All participants were fully dentate with no history of congenital asymmetry and orthodontic treatment. There were no extensive dental restorations, head and face trauma, maxillofacial or plastic surgery/treatment and did not have tattoos or excessive facial hair on the chin (male participants). They were all of the Greek ethnicity in a family origin two generations back.

Two digital photos of each participant received with a Canon 1200D camera (Canon Inc. Japan) at a room appropriately prepared by means for standardized and reproducible photo shoots. These included a 3D spirit level, a tripod, two-mounted soft-box mono-light, a black background, a levelled standing base, standardized measured adhesive marking spots, and a makeup pencil.

The images were processed with the Java-based image processing software "ImageJ" (developed by W Rasband, National Institutes of Health and Laboratory for Optical and Computational Instrumentation, University of Wisconsin, USA License: Public Domain, BSD-2). The equipment was adjusted for reproducibility and accuracy, namely the camera and each participant for each shoot were aligned parallel to the actual horizontal level, lens at the eye level of each subject. A brief interview and intraoral examination took place, where appropriate data - demographics and a full dental record- were collected. Lateral and anterior view photographs were captured, while the subject held a standing position with the head at the natural head position. Additionally, they were asked not to occlude their teeth.

The facial measurements chosen as the primary dimensional descriptors were the Facial Index (FI), the Middle Vertical Proportion (MVP), the distance between the lower lid and orbitale (PI_OR) and the Nasolabial Angle (NA).

Results: All statistical analyses were performed using the IBM SPSS v.24 statistical software (IBM Corporation, USA). The significance level was preset at a=0.05 ($p \leq 0.05$).The discrimination "power" of the above facial measurements for classifying and grouping the participants into certain types-clusters, without any prior hypotheses relative to the "mechanism" used to produce the data (e.g. sampling design, participants' demographic data, inclusion-exclusion criteria etc.)

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

E.O.O.

CITY OF ATHENS

Under the previously mentioned assumptions, the Hierarchical Cluster (HCA) was used as a "blind separation" tool, to reveal latent structures in the data, using only the information enclosed in the chosen facial measurements. Specifically, the squared Euclidean distance was used as a dissimilarity index among the participants and clusters' joining was based on Ward's criterion. The z-scores of all facial measurements were entered as input to the HCA method. HCA revealed four participants' types/clusters.

Twelve participants (20.7%), were grouped to type 1 (T1), 23 (39.7%) to type 2 (T2), 16 (27.6%) to type 3 (T3) and 7 (12.1%) to type 4 (T4). The majority of participants joined T2 and T3 clusters (67%). The variables-characteristics contribution to clusters' formation at the first level was, in descending order, PI_OR ($\eta2=0.608$, p<0.001), NA ($\eta2=0.615$, p<0.001), and MVP ($\eta2=0.393$, p<0.001). T1 members showed, on average, low values for all three variables; significant low values, especially for PI_OR (mean=11.7) and MVP (mean=44). T2 members showed large PI_OR values (mean=16), T3 members showed large NA values (mean=110.8) and T4 members showed large MVP values (mean=49.4), low PI_OR (mean=13.1) and very- low NA values (mean=80.9).

Age and gender profile contributed to clusters' formation level 2. The median age for the T1 members was 54 yrs, for the T2 members 53 yrs, for the T3 members 48 yrs and the T4 members 66 yrs. Six male (50%) and 6 female (50%) participants were grouped to T1, 16 male (69.6%) and 7 female (30.4%) participants to T2, 9 male (56.3%) and 7 female (43.7%) participants to T3 and 2 male (28.6%) and 5 female (71.4%) participants were classified to type T4. Facial Index (FI) contributed to clusters' formation level 3. The mean value of FI was consistent for T1 and T3 (mean FI=82.5). However, for T2 the FI mean was 85.2 and for T4, 83.6. No systematic and significant correlations were highlighted among participants' age, FI, MVP, PI_OR and NA measurements. No statistically significant differences were found between male and female participants relative to the mean values of age, FI, PI_OR and NA measurements. Female participants showed, on average, higher MVP (and consequently lower LVP) values than the male participants (female's mean=47.1 vs male's mean=45.4, t-test p=0.013).

Conclusions: Within the limitation of the study, the selected primary facial descriptors provided certain facial types-clusters, revealing underlying grouping structures, which in turn contribute to (a) elaborate anthropometric measurements for older people appropriately and (b) evaluate treatment options and outcomes.

OP7.2

Challenges in a systematic search for a metatheory on how patients manage tooth loss

Maha Alsahan[1,2], Michael I MacEntee[1], S Ross Bryant[1]

[1]Department of Prosthodontics and Dental Geriatrics, Faculty of Dentistry, University of British Columbia, Vancouver, Canada
[2]Department of Prosthodontic Dental Sciences, College of Dentistry, King Saud University, Riyadh, Saudi Arabia

Introduction: Complete tooth loss is a leading cause of oral disability, and it is among the most difficult treatment challenges in dentistry. Tooth loss, like the loss of other body parts, can generate profound emotional and social responses. However, there is limited knowledge on how people manage the loss of teeth or, indeed, other visible body parts. To explore this phenomenon of anatomical loss from a psychosocial perspective, we conducted a systematic review of the literature based on the principles of qualitative synthesis to identify and synthesize theories pertinent to the beliefs and behaviours of people responding to the loss of breasts, limbs or teeth. During this search, we encountered multiple methodological challenges, some reported previously by others and some unique to our objectives, that required special considerations and solutions to achieve an optimal yield of existing knowledge.

Methods: The electronic search was conducted on Medline (OVID), EMBASE (OVID), PsycINFO and CINAHL using appropriate search terms for articles published between 1950 and 2018, supplemented by a direct search of reference lists from relevant articles. The search produced 2,540 citations relating to anatomical loss from which we identified 288 articles with 89 primary theories developed from 586 psychosocial constructs. To this foundation, we applied the principles of qualitative synthesis to explain psychosocial responses to loss within the context of a metatheory synthesized essentially from theories on communications, developmental regulation, emotions, resources, and social cognition.

Challenges: This literature search was hampered by eight major challenges pertaining to: 1) the research question; 2) construction of inclusion and exclusion criteria; 3) ambiguity of the term "theory"; 4) the search terms used by the different databases; 5) the immense yield of irrelevant citations; 6) theories identified without component constructs; 7) assessing the quality and relevance of the theories; and 8) the process of inductive analysis to deconstruct, aggregate, categorize, and synthesize ideas on human beliefs and behaviours.

Solutions:
1) Research Question: Limit the scope of the search and clearly define key terms by refocusing and refining the research question. This was addressed by modifying the research question repeatedly until the scope and meaning of anatomical loss was expanded and fully understood.
2) Inclusion and Exclusion Criteria: Include theories from multiple healthcare disciplines.
3) Ambiguity of "Theory: Provide clear and explicit search criteria specific to the development and application of attitudinal and behavioral theories when indexing the databases.
4) Search Terms: Select, refine and apply terms appropriate to each database.
5) Enhance and Control the Yield of Irrelevant Citations: Use multiple databases supplemental by directly searching the reference lists of relevant articles, grey literature, and personally soliciting advice from content experts.
6) Theories Without Constructs: Limit inclusion criteria to literature that clearly explains the conceptual source and operational structure of relevant theories from a wide range of health and psychosocial disciplines.
7) Assessing Quality and Relevance of Theories: Assess theories from the perspective of plausibility and relevance to the research objectives.
8) Inductive Analysis: The development and conceptual interpretations of each theory and synthesis of the metatheory was enabled by a process of continuous discussion to consensus among the three-person research team enabled by QSR NVivo 11 qualitative data software and evidence mapping. The discussions helped us to explore the implications of each theory and to develop a robust theoretical perspective of several complex

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of
HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

phenomena. For example, our initial understanding of how people respond psychosocially to tooth loss was considered initially from the popular perspectives of grief and personality theories; however, the limitation of these perspectives became apparent as we identified the plausible role of a more expansive metatheory that combined the constructs of communication, developmental regulation, emotions, resources, and social cognition theories.

Conclusions: Searching for theories relevant to the psychosocial responses initiated by the loss of a visible body part was hampered by at least eight significant methodological challenges. The solutions we found should enhance the use of qualitative synthesis to find realistic and plausible explanations of how and why people respond to ill-health.

OP7.3

Biological effects of "inflammageing" on human oral cells: A contribution to age-related diseases

Elli Alexakou[1], Athina Bakopoulou[1], Danae A. Apatzidou[2], Vassiliki Anastassiadou[1]

[1]Department of Prosthodontics, School of Dentistry, Faculty of health Sciences, Aristotle University of Thessaloniki (A.U.TH.), Thessaloniki, Greece
[2]Department of Preventive Dentistry, Periodontology & Implant Biology, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki (A.U.TH.), Thessaloniki, Greece

Background and aim: Current evidence link biological ageing to non-communicable diseases through chronic physiological stimulation of the immune system, which can lead to inflammatory processes within the tissues. Senescence, the biological ageing, of cells has the potential to develop an inflammatory pattern, namely "inflammageing", driving living cells to a state of permanent cell cycle arrest due to chronic antigenic irritation.

This low-grade inflammatory pattern is characterized by pro-inflammatory increased and decreased anti-inflammatory levels of cytokines, often met in older people, but also by other inflammatory markers, such as lipid parameters.

These perturbations result in over-responses of the host to environmental stimuli, which last for an extended period following the removal of the original stimulus. The increasing load of senescent cells within the tissues and the release of soluble agents into the surrounding microenvironment, i.e. cytokines, chemokines, growth factors, and enzymes proteases, comprise the "Senescence-Associated Secretory Phenotype" (SASP), is likely to contribute to tissue dysfunction.

The SASP-associated proteins released in the host tissues induce aseptic inflammatory conditions and consequently tissues gradually start to exhibit signs of ageing. It has been shown that the SASP-mediated micro-environmental cues may induce an "inflammatory licensing" to the neighbouring healthy cells, initiating a "vicious cycle" that ultimately leads to a further increase of inflammation and cellular dysfunction.

Several indicators of inflammation have been identified; pathways and mechanisms link oral diseases with changes in distant aged organs, resulting in the development and acceleration of progression of degenerative diseases.

The present study aimed to investigate the mechanisms of inflammageing in oral tissues by: (a) exploring the effects of induction of mild, consistent pro-inflammatory signals on the acceleration of senescence and the development of SASP in healthy human gingival fibroblasts (hGFs), (b) identifying the cellular senescence-related biomarkers that drive inflammageing.

Materials and methods: Free-gingival biopsies of young, healthy donors (<20 years) were used for the establishment of primary cultures of hGFs, since these cells represent the first line of defense against oral stimuli. The primary hGFs cultures were exposed to various pro-inflammatory signals including: (a) LPS, (Sigma-Aldrich, Germany), a representative gram-negative bacteria outer-membrane component, (b) TNFa, (Sigma-Aldrich) a pleiotropic cytokine associated with the pathogenesis of several inflammatory diseases, and (c) gingival crevice fluid (GCF), collected from a deep inflammatory periodontal pocket of a systemically healthy periodontitis adult. The subsequent evaluation of cellular senescence was based on the quantification of beta-galactosidase positive cells. An analysis of the expression of senescence-associated genes by real-time PCR, and assessment of the SASP by proteomic arrays were performed.

Inflammageing was studied through two different experimental models: (a) the first model included "aged" hGF cells due to prolonged passaging (p.10) that were directly exposed to the pro-inflammatory stimuli (LPS, TNFa, GCF), (b) the second model included hGF cells continuously exposed to the same stimuli from early (p.1) to late (p.10) passaging. These cells represented "young" cells undergoing pro-inflammatory exposure over long-term culture expansion.

In the first model, hGFs at p.10 were seeded at 5×10^4 cells/well in 6 well-plates, using DMEM (Biosera, France), supplemented with 10% FBS and antibiotics/antimycotics as a complete-culture-medium (CCM). Cells were exposed to (a) TNFa (1 and 10 ng/ml), (b) LPS (1 and 10 μg/ml) and (c) GCF, the gingival fluid cocktail (1:100 and 1:200 final dilution in CCM). Ethanol (EtOH) at two different concentrations (100 and 500 mM) was used as a positive control for senescence induction, while cells without treatment served as the negative control.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

E.O.O.

CITY OF ATHENS

Cells were exposed to the stimuli three times, every 48 hours, through medium change and replenishment of the pro-inflammatory factors. At the end of the culture period, cells were histochemically stained for beta-galactosidase expression, while cell lysates were processed for real-time PCR analysis, and the culture supernatants for proteomic array-based analysis.

In the second model, hGFs at p.1, were seeded in CCM, and longitudinally exposed to the above-mentioned pro-inflammatory signals until p.10. At early (p.2-3), medium (p.6-7) and late (p.10-11) passages, cells were processed for beta-galactosidase staining, real-time PCR analysis of senescence-associated genes (CCND1, C2CD5, SUSD6, STAG1) and proteomic analysis (R&D Systems, USA) of culture supernatants for SASP-associated biomarkers (Eotaxin, Eotaxin-2, GCSF, GM-CSF, ICAM-1, IFN-gamma, I-309, IL-1alpha, IL-1beta, IL-2, IL-3, IL-4, IL-6, IL-6sR, IL-7, IL-8, IL-10, IL-11, IL-12p40, IL-12p70, IL-13, IL-15, IL-16, IL-17, IP-10, MCP-1, MCP-2, M-CSF, MIG, MIP-1alpha, MIP-1beta, MIP-1delta, RANTES, TGF-beta1, TNF-alpha, TNF-beta, sTNF RI, sTNF-RII, PDGF-BB, TIMP-2) detected by chemiluminesence (MicroChemi, DNR Bioimaging-Systems, Israel).

Results: Statistical analyses were performed using Prism-Graphpad 6.0 (GraphPad-Software, USA) at a preset significance level a=0.05 (p<0.05). Statistically significant increases in the number of beta-galactosidase positive cells were observed with passaging. These increases were further enhanced after exposure to each of the applied pro-inflammatory signals (LPS, TNF-a and GCF) in a concentration-dependent manner; up to 17% for GCF, 20% for LPS, 19% for TNF and 12% for EtOH. The senescence-associated genes displayed the following expression profiles: (a) Upregulation for CCND1 (up to 2.6 ± 0.1 for LPS-treated cells at p.10). (b) Downregulation for C2CD5 (up to 0.4 ± 0.1 for LPS-treated cells at p.10), SUSD6 (up to 0.5 ± 0.1 for LPS-treated cells at p.10), and STAG1 (up to 0.6 ± 0.1 for TNFa-treated and GCF-treated cells at p.10). The observed shifts in the senescence associated genes indicated cell-ageing with passaging in presence of the proinflammatory stimulus. Overall, pro-inflammatory licensing of late-passage cells caused more pronounced effects compared to long-term exposure of early-passage cells to the stimuli, potentially due to the development of compensation mechanisms. The proteomic array results showed induction of SASP after pro-inflammatory signaling.

Conclusion: The study provides evidence on the impact of long-term exposure to various pro-inflammatory signals on the induction and acceleration of senescence of healthy oral cells. The arisen biomarkers were proven sensitive to the change in phenotype towards senescence. Therefore, can be successfully used to determine a resilience profile of oral cells against "inflammageing". Further research is in progress to provide a full genomic and proteomic mapping of cellular changes occurring during long-term exposure of oral cells to a pro-inflammatory microenvironment including oral cell derived from older donors.

OP7.4

Personal protection for caregivers: Tips concerning oral health in light of COVID-19

Almir Oliva Filho, Raquel Araújo

ABOPE, Rio De Janeiro, Brazil

Background and aim: The coronavirus disease 2019 (COVID-19) was characterized as a pandemic on March 11th by World Health Organization (WHO). Older persons and those of all ages who have underlying health conditions might be at a higher risk for severe illness from COVID-19. As the world's population increases in age, many health outcomes, as well as dementia, are expected to rise. Those events are coexisting and leading the elderlies to a more vulnerable condition where they are at increased risk for adverse health outcomes, including death. Caring for an older person with dementia is challenging enough without a global health crisis. In light of these facts, the aim of this study was to discuss the evidences about protecting the caregiver from harm facing a pandemic, particularly when providing the oral care.

Methods: A literature search was conducted on PubMed and Scopus, using the keywords: "dementia", "caregiving", "COVID-19" and "coronavirus". Recommendations from Alzheimer's Association and guidances from Centers for Disease Control and Prevention (CDC) and WHO were incorporated.

Results: Caregiving is an activity provided by family members, friends or neighbors but also by professionalized or formal caregivers. Independently of who is providing the care, there is an urgent need that health care professionals offer better support to help caregivers managing their tasks. Before effectively acting, there are some steps that may improve the health care provision: creating a household plan of action and planning home-based good personal health habits. Thereupon, specifically about oral health care it is important to pay attention about hand-washing before and after the procedure, certify that there is sufficient personal protective equipment (PPE) and clean all surfaces next to the area where the care is provided. Self monitoring for symptoms of COVID-19 is one of the highly important tips.

Conclusions: The impact of the pandemic on formal and informal caregivers need to be appraised since they often feel unprepared and receive little guidance to provide oral care. Concerning the level of exposure of caregivers, there is an urgent need to share high quality information as to improve habits, respecting the individuals.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

OP7.5

COVID-19 Pandemic: students' perspectives on dental geriatric care and education

Mario Brondani, Leeann Donnelly

UBC, Vancouver, Canada

Objective: With the emergence of the COVID-19 pandemic in Canada and the curtailment of clinical and face-to-face university instruction in British Columbia on March 16, 2020, the opportunity arose to explore how third- and fourth-year undergraduate dental students critically considered the impact of the pandemic on education and the practice of dental geriatrics.

Methods: All third- and fourth-year undergraduate dental students within a dental geriatric module were asked to provide a written guided reflection on the question: "In your opinion, what factors make outbreaks (or pandemics) like COVID-19 relevant to the practice of dental geriatrics?" Reflections were gathered from March 12 to April 30, 2020. Thematic analysis was conducted to identify and interpret patterns of meaning within the reflections via an interactive coding process.

Results: A total of 115 reflections, between 291 and 710 words each, were received from 56 third-year (62.5% male) and 59 fourth-year (42.6 % male) students. Five main themes emerged: experiencing uncertainties, frailty as a moderator, constraints in accessing care, preparedness protocol, and redefining care. The frequency in which the same codes, categories, and themes were assigned varied from 16 to 140 times.

Conclusion: Students' reflections highlighted the effects of the pandemic, not only on their education but also on frail older adults themselves and the profession of dentistry in general. Further studies are warranted to explore how this curtailment might impact educators' approaches to geriatric education, as well as the way graduating students will set up their practices and approach geriatric care in the future.

OP7.6

COVID-19: A burden for maintaining oral health in dependent elders

Andrea Lundberg[1], Anna-Lena Hillebrecht[1], Gerald McKenna[2], Murali Srinivasan[1]

[1]*Clinic of General, Special care, and Geriatric Dentistry Centre of Dental Medicine, University of Zurich, Zurich, Switzerland*
[2]*Queen's University Belfast, Belfast, Belfast, United Kingdom*

Background and aim: Multimorbid older adults belong to the highest risk category and are susceptible to fatal outcomes with the COVID-19 infections. COVID-19 restrictions have impacted the provision of even routine dental care to this high-risk elderly group. Furthermore, to avoid the risk of spread of COVID-19, access to institutionalized elders is restricted. Poor oral health is often a common finding in dependent institutionalized elders; and may lead to complications such as pneumonia-related deaths. Hence the provision of regular dental care to these elders is considered cardinal. It is evident that the restrictions attached with this pandemic will be relaxed in the near future when a control in its spread will be established. However, it is pertinent to bear in mind that the provision of dental care will still be limited in this high-risk group. A likely timeframe for the return to normalcy is impossible to predict at this juncture. Moreover, clinics and care providers who render dental services exclusively to this high-risk group of elders will be compromised economically.

This study aimed to evaluate the effects of the treatment restrictions due to the COVID-19 pandemic on the provision of dental care to vulnerable adults. The secondary aim studied the effects on the economic implications on the geriatric clinic that provides care exclusively to these dependent elders.

Methods: The ethics committee in Zurich, Switzerland was requested for ethical approval (BASEC-Nr. Req-2020-00481) and it was decisioned that this audit-based study did not fall within the scope Human Research Act (HRA). Annually, the Clinic of General, Special care, and Geriatric Dentistry (ABS) at the University of Zurich, provides care to approximately over 4000 elderly patients as well as patients with special needs. The clinic also provides dental care to about 2000 institutionalised elders yearly, through its out-reach program, mobiDent™ (mD), within and around Zurich in Switzerland.

An internal audit was performed on the clinical activity for the period of the first quarter of 2020 and was compared to the recorded clinical activity of the preceding year (2019) for the same period. Since the declaration of the COVID-19 emergency in Switzerland, the clinic exercised the restrictions on dental treatments for elders from March 2020 and formally shut down its services from the 16th of March 2020.

Patient number
The audit extracted the details on the number of patients treated in the clinic (ABSP), in the outreach program (mDP), in emergencies (EDP), and the overall total number of patients (DEPP). These were extracted for the first trimester of the current year (January-March 2020) and compared with that of the same period for the previous year (2019).

Revenue
Revenue generated by the clinic (ABSR), outreach program (mDR), total department revenue (DEPR) and net gain of the clinic were extracted for the first trimester of the current year (January-March 2020) and compared with that of the same period for the previous year (2019). Exact financial figures were extracted by the audit but are reported as a percentage decline in comparison to the preceding year. Expenses incurred for the clinic were calculated based on actuals which included staff salaries, dental laboratory bills, clinic and administrative materials, maintenance, as well as miscellaneous expenses. Net gain was calculated as a difference between the total generated income and the total expenses. The gain was also expressed as a percentage difference in comparison to the previous year (2019).

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

E.O.O.

CITY OF
ATHENS

Projections

A projection for the reminder of the year (till December 2020) was made, taking the current period's figures and compared it with the clinical activity of the previous year. All the actuals were used for the projections and expressed as a difference in percentages.

Means of the actual figures were calculated and data was verified for a normal distribution. Differences between the timepoints were analysed using ANOVA with the significance set to $p<0.05$. All statistical analyses were performed using SPSS statistical software (version 25.0, IBM Incorporated, NY, USA).

Results: A decline in the ABSP, MDP, EDP, and the DEPP was observed by 16.47%, 27.59%, 45.07%, and 18.41%, respectively for the January-March 2020 period. It was statistically significant for ABSP [$F_{(1, 4)}$ = 590.371, $p=0.00004$], EDP [$F_{(1, 4)}$ =1152.598, $p=0.021$] and DEPP [$F_{(1, 4)}$ =532.795, $p=0.026$]. The April-May period revealed a further significant reduction in the number of patients treated by 56.14% [$F_{(1, 2)}$ = 151.176, $p=007$], 100% [-], 43.48% [$F_{(1, 2)}$ = 701.281, $p=0.001$ and 84.65% [$F_{(1, 2)}$ = 1449.667, $p=0.001$] for ABSP, MDP, EDP, and the DEPP, respectively. By December 2020, 39.93% ($p<0.0001$), and 81.14%, ($p<0.0001$) of the patients will not have received emergency, and routine dental care, respectively.

The revenues for the ABSR, mDR, and the DEPR, declined in the January-March period by 26.36%, 12.52%, and 25.05%, respectively. It was a significant decline by 93% in ABSR [$F_{(1, 2)}$ =81857.612 , $p=0.00001$], 100% in mDR [-], and 93.61% for the DEPR [$F_{(1, 2)}$ =124768.900, $p<0.0001$] for the April-May 2020. By December 2020, the revenues are estimated to decline by 92.46% [$F_{(1, 12)}$ = 2.820E+35, $p<0.0001$] in ABSR, 100% [-] in mDR, and 93.47% [$F_{(1, 12)}$ = 5.582E+35, $p<0.0001$] in DEPR.

The expenses remain constant during the first quarter, while marginally reducing by 3.01% ($p=0.874$) by June ($p=0.405$), and significantly reduces by 6.70% by December 2020 ($p<0.001$). However, the net gains show a decline from 216.18% ($p=0.268$) in January-March, to 642.91% [$F_{(1, 2)}$ = 96.865, $p=0.010$] in April-May and a further deficit by 899.61% in December 2020.

Conclusions: Preventive strategies implemented to arrest the spread of COVID-19 might inadvertently compromise the oral health of vulnerable elders. Furthermore, the centers that provide care for this focus group might sustain substantial financial losses during and beyond this pandemic period.

OP8.1

Oral function and food intake status in subacute stroke patients admitting to a convalescent rehabilitation unit

Yu Sekimoto[1], Koichiro Matsuo[1], Nami Katayama[1], Mieko Okamoto[1], Seiko Shibata[2], Eiichi Saitoh[2]

[1]*Department of Dentistry and Oral-maxillofacial Surgery, School of Medicine, Fujita Health University, Toyoake, Japan*
[2]*Department of Rehabilitation Medicine I, School of Medicine, Fujita Health University, Toyoake, Japan*

Background & Aim: Since stroke patients often suffer from dysphagia and deteriorated oral health, proper oral rehabilitation is important. Thus, we investigated oral hygiene and function quantitatively and identified associations with oral feeding status in stroke patients admitting to a convalescent rehabilitation unit.

Methods: We prospectively recruited 187 stroke patients admitted to a convalescent rehabilitation unit. Oral feeding status was examined using the Functional Oral Intake Scale (FOIS), and the cohort was divided into 3 groups based on FOIS score as FOIS-123 (mostly non-oral feeding, NOF; 22 patients), FOIS-45 (dysphagic diet, Dys-D; 74 patients), and FOIS-67 (mostly regular diet, Reg-D; 91 patients) groups. Activities of daily living were assessed with the Functional Independence Measure (FIM). Oral health status was measured quantitatively in 3 oral hygiene and 3 oral function categories, and differences according to the FOIS, age and FIM were statistically tested.

Results: In bivariate analysis, tongue pressure and tongue-lip motor functions were significantly higher in the Reg-D group than in the other groups (all $P < 0.01$). Gross oral health status score measured by the Oral Health Assessment Tool was also significantly better in the Reg-D group than in the other groups (both $P < 0.01$). These significant associations mostly remained in the multiple model adjusting for age and FIM.

Conclusions: This study revealed that oral function was significantly diminished in subacute stroke patients with non-oral feeding or having dysphagia diet. These findings emphasize the importance of quantitative assessment for oral function in stroke patients admitting to convalescent rehabilitation units.

OP8.2

Elders with care-resistant behavior in nursing homes

Mohamed El Gedaily[1], Hansmartin Spatzier[1], Murali Srinivasan[1]

[1]Clinic of General, Special care, and Geriatric Dentistry Centre of Dental Medicine, University of Zurich, Zurich, Switzerland
[2]Queen's University Belfast, Belfast, United Kingdom

Background and aim: Majority of elders living in nursing homes (NH) suffer from poor oral hygiene because of factors such as neglect, loss of autonomy, physical handicap, lack of access to care, age-associated systemic conditions, and cognitive decline, amongst others. Poor oral hygiene in dependent elders can lead to tooth loss, that may impair chewing function and thereby increasing the risk for malnutrition. Furthermore, poor oral health can cause other complications such as aspiration pneumonia, and possibly pneumonia-related adverse outcomes. Therefore, provision of good oral care to elders residing in NH is imperative. However, it is not so easy especially in those with moderate or severe cognitive decline and exhibit care-resistant behaviours.

Care-resistant behaviour (CRB) is defined as, "repertoire of behaviours with which persons with dementia withstand or oppose the efforts of a caregiver." CRB increases exponentially with the increase in dependence that is accompanied with the progression of dementia. Performing oral hygiene or dental treatments in such elders is not only difficult but may sometimes be impossible. Provision of oral care to the individuals might require an increased number of treatment visits, time, as well as associated costs. On the contrary, because of CRB there may be a total lack of care. The primary aim of this study was to assess the oral health and associated conditions in elders with CRB residing in NH and compare them with those without CRB. The secondary aim was to evaluate whether the CRB increases the treatment burden in terms of number of visits, time and costs as well as the risk of mortality. The tertiary aim was to assess whether demographic factors affected the CRB in elders.

Materials and Methods: This study was evaluated by the ethics committee of Zurich (KEK) and received authorisation (BASEC-Nr. Req-2020-00617). The clinic of Geriatric and Special care Dentistry in the Centre of Dental Medicine at the University of Zurich provides dental care to institutionalised elders through its outreach program (mobiDent™) in, and around, Zurich. Participants from eight NH who receive dental treatment through mobiDent™ were included in this study. The medical and dental records of the treated elders were screened; the following information on general health and demographics were extracted: age, gender, vital status, RAI/RUG score, MMSE scores, number of chronic diseases, number of prescription drugs consumed, use of sedatives, mobility status, ADL score, clock test score and presence of CRB. Information extracted on oral/dental health status included: oral examination not possible (Examnp), dental functional capacity (DFC), DMF-T score, periodontal status (modified CPITN), presence of halitosis, dependency for oral hygiene (DEPOH), frequency of oral hygiene (FreqOH), edentulous state [maxilla (Edentmax), mandible (Edentman)], presence of removable prosthesis (RDP). Information regarding treatment history were also collected and comprised of: treatment possible/not (Rxnp), number of treatment procedures performed, number of dental appointments, treatment time, and treatment cost. Data was verified for normal distribution; point-biserial correlation model (95% CI) was used for statistical analysis with the level of significance set at $\alpha = 0.05$.

Results: 1185 elders (total: n = 2080) from 8 institutions received regular dental care through mobiDent™. Consent was available from 503 elders (total: n = 503, age = 86.4 ± 8.5y; men: n = 347, age = 87.0 ± 8.5y; women: n = 156, age = 85.3 ± 8.6y) and their information was included in this study for analysis. The mean RAI/RUG, MMSE, and ADL scores, of the included participants were 7.5 ± 1.9, 17.0 ± 7.0, and 12.1 ± 4.7, respectively. The average number of chronic diseases was 5.4 ± 2.12, and the mean number of prescription drugs administered was 8.76 ± 3.41, per elder. The overall mean DMF-T and periodontal scores were 23.76 ± 4.52 and 2.89 ± 0.69, respectively. The mean frequency of oral hygiene measures performed was 1.67 ± 0.80.

A total of 135 elders (26.8%) exhibited CRB (men = 105, age = 84.6 ± 9.0; women = 30, age = 86.5 ± 8.7). In this CRB group, 23 men (age = 86.6 ± 5.7) and 12 women (age = 86.1 ± 6.3) were deceased.

Point-biserial models confirmed a strong positive correlation between CRB and Examnp (rpb = 0.620, p<0.0001), DFC (rpb = 0.563, p<0.0001), DEPOH (rpb = 0.252, p<0.0001), absence of RDP (rpb = 0.131, p = 0.004), and Rxnp (rpb = 0.407, p<0.0001). A strong negative correlation was observed between CRB and the edentulous state [EdentMax (rpb = -0.151, p = 0.001), EdentMan (rpb = -0.174, p<0.0001)], number of treatment procedures (rpb = -0.181, p<0.0001), treatment time (rpb = -0.118, p = 0.010), and treatment costs (rpb = -0.100, p = 0.028). No correlation was found between CRB and other parameters.

CRB demonstrated a sex predilection for men (rpb = -0.155, p = 0.010), and was positively correlated to the use of sedatives (rpb = 0.097, p = 0.031). CRB was negatively correlated to MMSE (rpb = -0.177, p = 0.002) and the number of drugs taken (rpb = -0.136, p = 0.002). Other demographic parameters did not show any correlation with CRB.

Conclusions: Based on the findings of this study the following conclusions may be drawn:
1. The oral health, with regard to periodontal and DMF-T statuses, seem to be similar in institutionalised elders with and without CRB. However, the prevalence of edentulism and the use of removable dental prostheses were higher in elders without CRB.
2. The treatment burden, with regard to the number of dental procedures, treatment time and costs, was not elevated in elders with CRB when compared to those who are not care-resistant; hence evincing that few/no treatment procedures were carried out in elders with CRB.
3. CRB demonstrated a definite sex predilection for men however, an association between CRB and an increased risk for mortality was not evident.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

OP8.3

Oral function was associated with physical performance, muscle strength and skeletal muscle mass in old-old Japanese

Yuki Murotani, Kodai Hatta, Toshihito Takahashi, Motoyoshi Fukutake, Yusuke Mihara, Kenichi Matsuda, Hitomi Sato, Hiromasa Hagino, Kaori Enoki, Yoshinobu Maeda, Kazunori Ikebe

Department of Prosthodontics, Gerodontology and Oral Rehabilitation, Graduate School of Dentistry Osaka University, Suita, Japan

Backgrounds and aim: Sarcopenia is one of the most common problems in the elderly. It is considered to be associated with physical disability and death. There are few studies investigated the associations of objectively evaluated oral function with physical performance, muscle strength or skeletal muscle mass that were diagnostic items for sarcopenia. The purpose of this study was to examine the associations of oral function with physical performance, muscle strength and skeletal muscle mass in community-dwelling old Japanese.

Methods: We examined the data collected from 508 community-dwelling elderly people (252 men and 256 women) aged 78- to 80-year-old. Six oral functions such as oral dryness, occlusal force, tongue-lip motor function(pa/ta/ka), tongue pressure, masticatory function and swallowing function were measured. Walking speed was evaluated as an index of physical performance, grip strength was evaluated as an index of muscle strength. We also recorded sex, height, number of teeth and SMI (Skeletal Muscle Index). The partial correlation analysis adjusted for sex was performed to investigate the association of oral function with walking speed, grip strength and SMI. The general linear model was performed to investigate the association after adjusted for sex, height and number of teeth. Statistically significance level was set at 5%.

Results: The partial correlation analysis showed that occlusal force, tongue-lip motor function(pa/ta), masticatory function and swallowing function were significantly correlated with walking speed. Occlusal force, tongue-lip motor function(ta/ka), tongue pressure, masticatory function and swallowing function were significantly correlated with grip strength. Occlusal force and tongue pressure were significantly correlated with SMI. General linear model showed that swallowing function (B=0.01, p<0.01) and tongue-lip motor function(pa) (B=0.02, p=0.01) were significantly correlated with walking speed. Tongue pressure (B=0.13, p<0.01) and occlusal force (B=0.003, p<0.01) were significantly correlated with grip strength. Tongue pressure (B=0.02, p<0.01) was significantly correlated with SMI.

Conclusions: Walking speed, grip strength and skeletal muscle mass might be respectively involved in different oral functions in community-dwelling old-old Japanese. These findings suggested that each oral function was reduced from a different cause.

OP8.4

Effects of domiciliary professional oral care for care-dependent elderly in nursing homes

Caroline Girestam Croonquist[1,2], Jesper Dalum[3], Pia Skott[1,2], Petteri Sjögren[4], Inger Wårdh[2,3], **Elisabeth Morén[3]**

[1]Folktandvården Stockholm AB, Stockholm, Sweden
[2]Academic Centre of Geriatric Dentistry, Stockholm, Sweden
[3]Department of dental medicine, Karolinska Institutet, Huddinge, Sweden
[4]Oral Care AB, Stockholm, Sweden

Background and aim: The oral health of care-dependent elderly living in nursing homes is frequently poor. With an ageing population, the need of care support for dependent elderly increases for the general public. Domiciliary dental care enables dental services in the patients' residences and offers the opportunity to provide regular check-ups, preventive measures and dental treatments to individuals who experience difficulties attending a regular dental clinic. The dental care performed at home by dental personnel is basic, with rather simple equipment and treatments like scaling of calculus, tooth extractions, filling, adjustments of dentures and plaque removal. A study conducted by Wårdh et al. (2012) regarding nursing staff's knowledge and attitudes towards oral health care showed that the majority of the nursing staff believed that the residents would tell them when they needed help with their daily oral hygiene. Furthermore, the majority felt that performing assisted oral care (toothbrushing, interproximal tooth cleaning and/or cleaning of prothesis) was a difficult task and 80% thought the greatest obstacle was the non-cooperation from the residents. Keboa et al. (2019) presented, from a nursing staff perspective on performing assisted oral care, that challenges lie in complicated teeth constructions, high workload, resistance towards looking into another person's oral cavity/mouth, and not wanting to performed assisted oral care. With this study we aimed to describe the effects of monthly professional cleaning and individual oral hygiene instruction provided by registered dental hygienists (RDHs) for nursing home residents, in comparison with daily oral care as usual. The secondary aim was to study the knowledge and attitudes among nursing staff regarding oral health care and needs.

Methods: In this evaluator-blinded, randomised controlled trial (RCT) with a study period of six months,146 residents were recruited from nine nursing homes in Regions of Stockholm and Sörmland and were randomly assigned (on nursing home level) to either intervention group (I; 72 participants with 56 women) or control group (C; 74 participants with 52 women). The inclusion criteria were living in a nursing home, ≥85 years of age, and at least ten remaining teeth including dental implants. Exclusion criteria were having full dentures, edentulous, reduced cognitive function that made cooperation impossible for examination and treatment by RDHs, extreme dry mouth assessed by the mirror-sliding friction test and ASA risk qualification of 4 or higher. The taking of antiplatelet drugs and anticoagulants was not an exclusion criterion but was noted in the study protocol during data collection. Oral examination was performed by using a flashlight, mirror and probe at baseline and the results were registered in a study protocol together with medical history and medication use. Oral health related data registered were; mucosal – and plaque score index (MPS), modified sulcus bleeding index (MSB) and root caries. Group I received monthly professional cleaning, individual oral hygiene instructions and information given by an RDH. Group C proceeded with daily oral care as usual (self-performed or nursing staff-assisted). The nursing staff's knowledge and attitude towards oral health were registered prior to participating in the educational programme at baseline using two questionnaires. The questionnaires were repeated at six-month follow-up. The questionnaires used were the Nursing Dental Coping Belief Scale (Nursing DCBS) and a knowledge questionnaire regarding oral health. Statistical analysis for both the residents and the nursing staff, was performed by Fisher´s exact test and two-way variance analysis (ANOVA).

Results: Improvements were seen in both Group I and Group C concerning MPS, MSB and active root caries. The mean number of natural teeth was 20.2 (SD 3.0) and 26% of the study participants received assisted oral care. 96% had had contact with dental care providers in the previous year. For MPS, improvements from baseline to six-month follow-up were seen in both Group I and Group C. The MSB index, improvements throughout the study could be seen within the both groups. For root caries, improvements were seen in both

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

Group I and Group C for healthy and initial caries lesions throughout the study period, without significant difference between the groups. The last follow-up period between three to six months showed improvement for Group I regarding active caries lesions, with an improvement of 17% in comparison with 4% in Group C (p=0.05). The nursing staff working with participants in Group I showed significant improvements regarding the Nursing Dental Coping Beliefs Scale (DCBS) in two of four dimensions, oral health care beliefs (p=0.0331) and external locus of control (p=0.0017) compared with those working with Group C. The knowledge-based questionnaire showed improvement (p=0.05) in Group I compared with Group C.

Conclusion: Monthly professional oral care, combined with individual oral health care instructions, seems to improve oral hygiene and may reduce root caries among nursing home residents. This may also contribute to a more positive attitude regarding oral hygiene measures among nursing home staff, as compared with daily oral care as usual.

Keywords: Aged, Residential Facilities, Nursing staff, Dental care, Attitude of health personnel, Oral health.

OP8.5

The features of oral health status and functions in Mild Cognitive Impairment (MCI) patients

Hiroyuki Suzuki[1], Jinichi Furuya[2,3], Chiaki Matsubara[3], Rena Hidaka[4], Haruka Tohara[3], Shunsuke Minakuchi[1]

[1]Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bukyo, Japan
[2]Geriatric Dentistry, Showa University School of Dentistry, Hatanodai Shinagawa, Japan
[3]Dysphagia Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bunkyo, Japan
[4]Oral Health Sciences for Community Welfare, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Yushima Bunkyo, Japan

Objective: Declination of cognitive function related to oral factors such as poor oral hygiene or poor masticatory function. However, it is difficult to provide intensive dental treatment to patients with dementia. Maintaining oral health status and function before the pathogenesis of dementia would be important.
Mild cognitive impairment (MCI) has been noted as a preliminary step to dementia recently. Providing appropriate dental care, which includes denture treatment on MCI patients to maintain their oral health status and function seems to be feasible. However, it has been unclear about the oral health status and function of MCI patients. Therefore, we conducted a cross-sectional study to clarify the oral health status and function on MCI patients.
The trial protocol was approved by the Ethics Committee of TMDU (M2017-112).

Method: Participants in this study were the patients with MCI and healthy subjects. Participants' MCI was diagnosed by a medical specialist of dementia.
Coating of tongue, plaque retention, gingival status, the number of current teeth and functional teeth, distribution of occlusal support in the molar region and usage of denture were assessed for evaluation of the oral health status. On the other hand, oral diadochokinesis, xerostomia scale, tongue and lip pressure, maximum occlusal force, masticatory function, swallowing function were assessed for oral function evaluation. Moreover, the necessity of dental treatment and the presence of the regular dental check-up were also assessed as intensity of dental consultation.
The outcomes were compared between MCI and healthy subjects using the chi-square test and the Mann–Whitney U test.

Result: We evaluated outcomes of 88 subjects (45 were healthy, 43 were MCI subjects). There were significant differences in some oral health status and function, such as plaque retention and maximum occlusal force, between MCI and healthy subjects. Moreover, more than half of the MCI subjects had not received regular dental check-up.

Conclusion: The results of this cross-sectional study suggested MCI subjects were trended to have poor oral health status and functions, but the declination seems to be modest. Therefore, it may be important to check slight changes of oral health status and functions for early detection of cognitive decline.

OP8.6

Chewing efficiency, global cognitive functioning, and dentition: A cross-sectional observational study in older people with mild cognitive impairment or mild to moderate dementia

Suzanne Delwel[1,2], Andrea B. Maier[3,4], Donya Parvaneh[1], Jesse Meijers[5], Erik J.A. Scherder[2], Frank Lobbezoo[1]

[1]Department of Orofacial pain and dysfunction, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands
[2]Department of Clinical Neuropsychology, Faculty of Behavioral and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam, Netherlands
[3]Department of Medicine and Aged Care, @AgeMelbourne, The Royal Melbourne Hospital, University of Melbourne, Melbourne, Australia
[4]Department of Human Movement Sciences, @AgeAmsterdam, Faculty of Behavioural and Movement Sciences, Amsterdam Movement Sciences, Vrije Universiteit, Amsterdam, Netherlands
[5]Triggre, Amersfoort, Netherlands

Background and aim: Previous studies suggest an association between poor mastication and cognitive impairment. The role of chewing efficiency and dentition in this relation is unclear. The aim was to examine global cognitive functioning and dentition as predictors for chewing efficiency, in older people with mild cognitive impairment (MCI) or mild to moderate dementia.

Methods: In this observational cross-sectional study, 136 people with MCI or dementia were included. The chewing efficiency was assessed with a two-colored chewing gum and analyzed with the Chewing Efficiency Analysis software. The level of global cognitive functioning was measured with the Mini Mental State Examination (MMSE) by trained clinical staff. An oral examination was performed by a dentist with experience in gerodontology and included the number of present teeth, the number of occluding pairs, and the presence of prostheses. Age, gender, and educational years were derived from the medical records. Univariate and multivariate backward stepwise linear regression analysis were used to evaluate global cognitive functioning and dentition as predictors for chewing efficiency.

Results: The mean age of the participants was 82.1 (SD 5.8) years, and 74 (54.4%) were female. The participants had a median MMSE score of 22.4 (IQR 18.0-26.0) and a median Chewing Efficiency Analysis score of .46 (IQR .14-.59). The median number of teeth was 13.0 (IQR 0.0-23.0) and the median number of occluding pairs was 0.0 (IQR 0.0-7.0). Sixty-four (47.4%) of the participants wore full prosthesis in the upper jaw. In univariate linear regression analyses, predictive factors for Chewing Efficiency Analysis score were age, MMSE score, full prosthesis in the upper jaw, number of present teeth, and number of occluding pairs. In the multivariate model, full prosthesis in the upper jaw ($p < .000$) and number of occluding pairs ($p = .003$) were significant predictors for Chewing Efficiency Analysis score. The final model explained 52% ($R^2 = .52$) of the variance in Chewing Efficiency Analysis score, $F_{(3, 131)} = 47.23$, $p < .000$. Participants with a higher number of occluding pairs had a higher Chewing Efficiency Analysis score. Participants with full prosthesis in the upper jaw, had a lower Chewing Efficiency Analysis score than participants with natural dentition in the upper jaw.

Conclusions: Better mastication is associated with a higher number of occluding pairs. Full prosthesis in the upper jaw is related to a lower chewing efficiency, compared to natural dentition in the upper jaw. Global cognitive functioning is not associated with mastication in older people with MCI or mild to moderate dementia, after adjusting for age and dentition. This might be explained by sufficient capacity for compensation of reduced mastication in this group.

ABSTRACTS FOR POSTER PRESENTATIONS

PP01

The absence of dental care during the Pandemic of COVID-19 for frail, elderly people. Is Home Dental Care the safest approach for them?

Almir Oliva Filho, Raquel Araújo, Ana Carolina Cruz

ABOPE, Rio De Janeiro, Brazil

Background and aim: The coronavirus disease 2019 (COVID-19) was characterized as a pandemic on March 11th by World Health Organization (WHO). Older persons and those of all ages who have underlying health conditions might be at higher risk for severe illness from COVID-19. The orientation of all organizations were to treat emergencies only. In patients with a decreased level of consciousness, pain of oral origin may be neglected, either because of their inability to report the symptom or because the oral cavity was not examined by the dentist. There is a widespread culture of neglect toward thorough investigation of the oral cavity during physical examination. In this context, it is worth stressing that the dentist is the provider best trained to detect abnormal findings in the oral cavity, which may cause major pain issues

Methods: A literature search was conducted on PubMed and Scopus, using the keywords: "frail elderly", "home dental care", "COVID-19" and "biosafety". Recommendations from American Dental Association, from International Association of Disability and oral health and guidances from Centers for Disease Control and Prevention (CDC) and WHO were incorporated.

Results: In addition to controlling oral symptoms, dentists can direct therapy as appropriate to prioritize pain control, proper hydration, and preservation of oral feeding for those with serious incurable diseases, as well as for patients with reduced autonomy or high dependence as a result of prolonged illness, as in some neurodegenerative diseases. During the pandemic, elderly people had almost every treatment suspended because they are in the highest risk group. Since the oral health care was also suspended, patients with ongoing dental demands were left unattended, oral health conditions during this period declined considerably. Providing home dental care for this group of individuals might be the best approach for them.

PP02

Evaluation of collagen degradation inhibition capacity of glass ionomer cement with BioUnion filler

Toshihiro Takahashi, Daizaburo Mori, Futoshi Fusejima

GC Corporation, Tokyo, Japan

Background and aim: Nowadays, aging population has been increasing globally. Root caries is more likely to be occurred in elderly people owing to increase of gingival recession. Furthermore, root caries progresses very quickly due to collagen degradation.
We developed a BioUnion filler that releases Zn^{2+}, F^-, and Ca^{2+}. These ions are expected to have antibacterial properties and to prevent collagen degradation.
In this study, we evaluated inhibition capacity of collagen degradation of ZIF-C that is glass ionomer cement containing BioUnion filler.

Materials: ZIF-C, Fuji IX GP EXTRA Capsule (EXTRA)
Method: Root of bovine tooth was embedded in acrylic resin and determined test surface by Teflon seal with hole (3 mm diameter and 0.1 mm thickness). These samples were immersed in demineralization solution (acetate buffer: 50 mM, $CaCl_2 \cdot H_2O$: 1.5mM, KH_2PO_4: 0.9 mM; pH 4.5) for 60 hours. After immersion, half of the test surface was filled with ZIF-C, and the test body was immersed in a collagen degrading enzyme (collagenase) solution (PIPES: 40 mM, NaCl: 150 mM, $CaCl_2 \cdot 2H_2O$: 1.5 mM, collagenase: 0.5 U/mL) for 6 hours. After rinsing the sample with distilled water, the test surface was sliced vertically, and the collagen degradation depth was observed and calculated using a phase contrast microscope (BX51, OLYMPUS, Japan). The same procedure was done for EXTRA and unfilled sample (control).

Results: Mean (± SD) values of collagen degradation depth were 5.7 (4.8), 26.0 (4.2) and 55.4 (1.9) µm for ZIF-C, EXTRA and control respectively. Collagen degradation depth of ZIF-C was significantly smaller than Extra and control. These results show that ZIF-C inhibit activity of collagenase. Function of zinc ion has been reported that zinc acts as an inhibitor of collagen degradation[1]. So, it is considered that the released zinc ion from BioUnion filler prevent the collagen degradation.

Conclusions: ZIF-C showed inhibition of collagen degradation. So, it is expected that ZIF-C is suitable material for inhibiting root caries progress.

Reference
1) M. Toledano, et al. Caries Res 2012;46:201–207

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP03

Increase of compressive strength and sustained ion release of ZIF-C under acidic conditions

Enzo Shida, Daizaburo Mori, Futoshi Fusejima

GC Corporation, Tokyo, Japan

Background and aim: The ZIF-C (ZIF-C, GC, Japan.) was developed as a novel encapsulated bioactive restorative. ZIF-C contains unique filler which release zinc ion (Zn2+) and fluoride ion (F-) and was named as "BioUnion". Especially, Zn2+ has been focused on antimicrobial effects and inhibition of demineralization effect. In this study, compressive strength and ion release ability (Zn2＋/F-) of ZIF-C has been investigated for one month in acid environment.

Methods: Cylindrical specimens (4 mm diameter, 6 mm height) were prepared by using following materials; ZIF-C, Fuji II CAPSULE (F2, a conventional glass ionomer, GC, Japan) and GRADIA DIRECT LoFlo(GDL, a resin-based composite, GC, Japan). These materials were filled into the metal mold. Then, light irradiation with G-Light Prima II (GC, Japan) was performed for 20 seconds for curing of GDL. The materials in the mold were clamped by metal plates and the assemblies were stored at 37℃/90% R.H. for 1 hour. This operation was repeated until 40 specimens of each materials were prepared. 40 specimens were divided into 5 groups as 1,3,7,14and 28days immersed group. Each group consists of 8 specimens. Each specimen was immersed in acid solution(pH4.5) under 37℃. Compressive strength was measured and concentration of Zn2+ and F- in acid solution was also analyzed with ICP-OES (AG-50kNG, SHIMADZU, japan) and F- ion selective electrode (n=4).

Results: The compressive strength of ZIF-C was increased depending on immersed period as follows; 137.7(±13.8) MPa (1 day), 135.1(±16.0) MPa (3 days), 159.8(±26.9) MPa, (7 days), 156.0(±13.5) MPa (14 days) and 181.2(±10.6) MPa (28 days). Continuous Zn2+ release was monitored; 66.8(±0.7) μg/cm2 (1 day), 94.9(±7.8) μg/cm2 (3 days), 117.8(±6.3) μg/cm2 (7 days), 187.3(±19.7) μg/cm2 (14 days) and 170.2(±10.1) μg/cm2 (28 days). F- release was also monitored; 31.1(±0.76) μg/cm2 (1 day), 35.8(±2.46) μg/cm2 (3 days), 51.6(±0.74) μg/cm2, (7 days), 74.9(±1.98) μg/cm2 (14 days) and 76.2(±0.15) μg/cm2 (28 days).

Conclusions: Sustained release of Zn2+ and F- was observed under the acidic condition. However, compressive strength of ZIF-C was increased. It indicates that release of ions are not due to dissolution or disintegration of the material. ZIF-C is a reliable material under acidic condition.

PP04

Antimicrobial effects of 4-META/MMA-TBB resin containing antibacterial agents

Mao Yamamoto[1], Masanao Inokoshi[1], Muneaki Tamura[2], Makoto Shimizubata[1], Kosuke Nozaki[3], Tomohiro Takagaki[4], Rena Takahashi[5], Kumiko Yoshihara[6], Shunsuke Minakuchi[1]

[1]Department of Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University (TMDU), Japan
[2]Department of Microbiology, Nihon University School of Dentistry, Japan
[3]Department of Fixed Prosthodontics, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University (TMDU), Japan
[4]Department of Operative Dentistry, Division of Oral Functional Science and Rehabilitation, School of Dentistry, Asahi University, Japan
[5]Department of Cariology and Operative Dentistry, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University (TMDU), Japan
[6]Health and Medical Research institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan

Background and aim: The number of missing teeth in elderly people decreased, whereas the number of root caries increased rapidly because of various reasons. Therefore it is quite important to create a new restorative material for root caries treatment. In this study, we aimed to assess the antimicrobial effects of a 4-META/MMA-TBB resin (Bondfill SB Plus, Sun Medical) containing antibacterial agents.

Methods: We employed two antibacterial agents, cetylpyridinium chloride (CPC) and benzalkonium chloride (BAC), and prepared 4-META/MMA-TBB resin which contains six different amount of antibacterial agents (1.25%, 2.5% and 5.0%). The 4-META/MMA-TBB resin without antibacterial agent was kept as control. Disk-shaped specimens (10-mm diameter; 2-mm thickness) were prepared and the antibacterial effect was examined by agar diffusion tests. Bacterial strains (Streptococcus mutans, Streptococcus sobrinus, Actinomyces naeslundii) were inoculated into BHI agar and incubated. The inhibition zones were determined after 24 hours incubation and statistically compared using Shapiro-Wilktest followed by either one-way ANOVA and Tukey's test or Kruskal Wallis test with Dunn test.

Result: Regardless of bacterial strains, the inhibition zone of BAC was larger than that of CPC. For S. mutans, inhibition zones of 4-META/MMA-TBB resin containing BAC were significantly larger than that of control group irrespective of the amount of BAC, whereas only CPC≥2.5% resulted in significantly larger inhibition zone than control group. For S. sobrinus, only BAC≥2.5% resulted in significantly larger inhibition zone than control group, while all CPC groups resulted in comparable inhibition zone to control group. For A. naeslundii, BAC≥2.5% and CPC5.0% resulted in significantly larger inhibition zone as compared to the control group.

Conclusion: The growth of microorganisms was inhibited by 4-META/MMA-TBB resin containing antimicrobial agents. The addition of antibacterial agents may affect antimicrobial effect of the 4-META/MMA-TBB resin.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP05

Exploring the antimicrobial mechanism of silver nanoparticles in older adult dentures for safe clinical application

Dimitra Vasilaki, Vassiliki Anastassiadou

Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki (A.U.TH.), Thessaloniki, Greece

Background and aim: Conventional denture resin-base (DRB) often cause damage to the oral supporting mucosa due to trauma and integrity loss. Additionally, they promote biofilm formation that causes stomatitis.
Microbial growth results from the microbial cells adherence, which is promoted by a rough surface and from adhesive interactions between Candida species and oral bacteria.
Denture stomatitis being resistant to conventional treatment of geriatric denture- bearing patients under medically compromised conditions is of significant concern for limitation and colonization of microbes and yeasts.
Silver nanoparticles (AgNPs) are currently, successfully, incorporated into permanent DRB and tissue conditioning materials (TCM) to promote mucosa health due to their fundamental properties such as the small size, large surface area and easy to produce in large quantity together with their antimicrobial action.
However, there is still no clear evidence as to the mechanism of the silver nanoparticles antimicrobial effect. This review aimed to investigate current evidence and specify conditions potentially contributing to the antimicrobial effect.

Methods: Two independent reviewers to identify English language articles, reporting on the antimicrobial effect of DRB and TCM containing silver nanoparticles, conducted an electronic search. Finally, ten published papers were included in this review.

Results: A wide variation in protocol designing was recorded. Surface roughness confirmed the adherence and colonization of microorganisms.
A decrease of C. Albicans bioactivity and biomass were highlighted, where AgNPs reinforced DRB and TCM. However, the AgNPs presented a negative effect on mechanical properties and aesthetics. The antibacterial and antifungal activity of AgNPs was concentration-dependent.
A significant factor for a no clear insight into the mechanism of AgNPs action included the missing information of optimal Ag concentration regarding the silver content and possible disruption of the oral microflora.
Clear evidence regarding toxic Ag excess effects and mechanical stability was also missing for proper and safe clinical application.

Conclusions: Current studies did not support the low susceptibility to oral microorganism adhesion. The AgNPs added in DRB and TCM potentially acted as a latent antimicrobial material.
Further studies will secure tolerance of tissue response, toxicity and stability profile on bacteria and fungi, which colonize on the plastic surface.

PP06

Evaluation of stereolithography in different post-curing conditions on the precision of photopolymer 3D resins

Awutsadaporn Katheng[1], Manabu Kanazawa[1], Maiko Iwaki[2], Toshio Arakida[1], Tamaki Hada[1], Yumika Soeda[1], Ryosuke Otake[1], Shunsuke Minakuchi[1]

[1]*Gerodontology and Oral Rehabilitation, Graduate school of Medical and Dental Science, Tokyo Medical and Dental University, Tokyo, Japan*
[2]*General Dentistry, Graduate school of Medical and Dental Science, Tokyo Medical and Dental University, Tokyo, Japan*

Background and aim: Stereolithography (SLA) technologies have recently attracted considerable attention as a suitable approach for the fabrication of complete dentures. However, assessing how SLA manufacturing and post-curing processes influence the precision of photopolymer resin remain unclear. The aim of this in vitro study was to investigate the effect of different post-curing time and temperature on changes of precision of SLA denture.

Methods: Sixty specimens simulating maxillary complete dentures were fabricated by SLA 3D printing. They were cured for two periods (15 and 30 minutes) at 3 different temperatures (40°C, 60°C, and 80°C), providing into 6 post-curing conditions. The intaglio surface of post-curing denture was digitized with light scanner. The precision was measured across specimens by superimposing the post-curing standard tessellation language (STL) file from each specimen group and using the combination formula (n=45/condition). The acquired images were processed and analyzed using 3-dimensional analysis software. Root means square estimates (RMSE) and color map data were obtained. Nonparametric Kruskal–Wallis and Mann–Whitney tests were used to analyze the data (α=0.05).

Results: The lowest median RMSE corresponded to the 30-minute and 40-°C group. This result was significantly different from those of other groups (P<0.001). There was no significant difference in the precision RMSE values among the 15-minute and 40-°C, 15-minute and 60-°C, 30-minute and 60-°C, and 15-minute and 80-°C groups. The highest RMSE was found in the 30-minute and 80-°C group. As regards the color map of the precision, a negative deviation can be observed at the left buccal slope in the 30-minute and 80-°C group, which indicates tissue compression. Interestingly, most specimens showed higher trends of deviation for the left intaglio surface. However, the 15-minute and 40-°C, 30-minute and 40-°C, and 15-minute and 80-°C groups exhibited a uniformly distributed green for intaglio surface adaptation. The primary deviation color was green at the palatal surface and alveolar ridge.

Conclusions: The post-curing conditions influenced the RMSE values of precision. The RMSE and color map data of the 30-minute and 40-°C condition corresponded to the greatest precision and the most favorable intaglio surface adaptation of the SLA denture.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP07

PMMA denture base enhancement: effect of different fillers

Imed Ouni[1], Farah Chouchen[2], Sinda Ammar[1], Lamia Mansour[1]

[1]*Prosthetic Department, National Dental Clinic, University of Monastir, Monastir, Tunisia*
[2]*Pediatric Department, National Dental Clinic, University of Monastir , Monastir, Tunisia*

Background and Aim: the aim of this study was to evaluate the hybrid reinforcement effects of three types of fibers as well as the effect of a reinforcing metallic grid on flexural strengths of a polymethylmethacrylate (PMMA) denture base. The different fibers used in this study were carbon, glass and kevlar fiber.

Methods: A total of 30 specimens were fabricated from heat-polymerized acrylic resins using the water bath technique and divided respectively on 5 groups each one contain 6 of tested specimens: Control group did not receive any addition, for the other test groups either carbon, glass, kevlar fiber and metallic grid were used respectively as reinforcement
The flexural strength test was conducted with the traction machine at a crosshead speed of 5mm/min, at the national school of engineers of Monastir-Tunsia : Mechanical department. Data were analyzed with one-way analysis variance ANOVA

Results: The flexural strength showed a significant improvement for the specimens filled with fibers (carbon fiber: 166 daN, glass fiber: 170 daN, Kevlar fiber: 186 daN). However, the test group reinforced with metallic grid (115 daN) showed a worst result compared to control group (151 daN), The maximum flexural strength were obtained with PMMA/Kevlar fiber mixture.

Conclusion: the incorporation of fibers within the PMMA matrix greatly enhances the potential of flexural strength, which can be a solution for old patient with frequent bases fractures.

PP08

Selection of the cutoff value for subjective masticatory functional test

Yoshiki Uchida, Yuji Sato, Noboru Kitagawa, Toshiharu Shichita, Tokiko Osawa, Akio Isobe, Mayumi Terazawa, Yukiko Hatanaka

Department of Geriatric Dentistry, Showa University School of Dentistry, Ota Word, Japan

Background & Aim: In 2014, the concept of oral frailty was introduced in Japan, showing that maintenance of oral functions is important to prevent physical frailty. In March 2018, oral hypofunction was recognized as a disease name. From April, 7 oral signs or symptoms (oral uncleanness, oral dryness, decline in occlusal force, decline in motor function of tongue and lips, decline in tongue pressure, decline in chewing function, and decline in swallowing function) were covered by insurance, and interest in oral function increased. A symptom of oral frailty is the loss of chewing ability for various food types.
 The occlusal force test and objective masticatory functional test are objective oral function tests for mastication. This survey was conducted to determine a cutoff value for the subjective masticatory functional test through comparison of the objective tests.

Methods: Altogether, 107 elderly patients (aged $\geqq$65 years), who provided consent, were enrolled. As a representative subjective evaluation, the Sato method (table for evaluation of chewing function in complete denture wearers), and objective evaluations comprising the occlusal force test (GC, Dental prescale Ⅱ○R) and the objective masticatory functional test (GC, Gluco sensor GS-Ⅱ○R) were used. By comparing them, the cutoff value of the subjective masticatory functional test was determined.

Results: Based on the reference value of oral hypofunction, the positive rate of the occlusal force test was 58% (<500 N, 62/107 patients), and the objective masticatory functional test was 36% (< 100 mg/dL, 39/107 patients). Using Youden's J statistic, the point (J = sensitivity + specificity -1), the maximum determined cutoff value for the Sato method, was 72.5 points in the occlusal force test and 67.5 points in the objective masticatory functional test.

Conclusions: The cutoff value for the subjective masticatory functional test was determined to be 67.5 points based on the occlusal force test and 72.5 points based on the objective masticatory functional test. From both tests, it is suggested that 70 points, which is a good sharpness value, is the optimum cutoff value for the Sato method.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP09

Oral health in postcards of older Greeks. A historical insight

Elizabeth Mestheneos

50plus Hellas, Athens, Greece

The poster will be a loop of postcards of older Greeks drawn from a collection of over 450 Greek and Cypriot tourist postcards containing older men (301) and women (215), mainly from the period 1988-2005. Striking evidence of the oral health of these older, mainly rural people is provided. 50 postcards were close-ups allowing an observation of the oral health of those in the photographs. (5 had good teeth, whether as dentures or as original teeth; 13 had no teeth, 9 had bad teeth. In 23 photos it was impossible to know the state of oral health. Some faces (approximately 12, predominantly women) were sunk around the mouth suggesting the absence of teeth. Many men sported large moustaches and beards making it difficult to know if their teeth were in a good state. This recent, historical collection, reflected the state of oral health of older mainly rural men and women.

PP10

Halitosis and elderly dental patients: the role of the general dentist

Persefoni Lambrou[1], Flora Zervou-Valvi[2]

[1]DENTIST, Engomi, Nicosia, Cyprus
[2]Dental Department - Dental Unit for Adults with Special Needs, "Asklepieion Voula's General Hospital", Athens, Greece

Background and aim: In the coming decades the developed countries will experience a double ageing of their population. The relationship between general and oral health must be understood by the general dental practitioner if therapies are to be effective. Halitosis is an offensive odor usually originating from the oral cavity and can lead to anxiety and psychosocial embarrassment. The occurrence of halitosis is closely related to intraoral conditions including xerostomia. Especially, the relationship between xerostomia and halitosis is prominent in elderly patients receiving polypharmacy. Dentists are faced with the effects of halitosis on the oral and systemic health of their elderly patients in clinical practice. The aim of this study is to summarize the role of the general dental practitioner as regards the early diagnosis and management of halitosis in elderly patients.

Methods: Electronic search of the PubMed database was performed to identify relevant studies published in the English-language from 2010 to present. The key words used were halitosis AND elderly AND general dentist. The initial electronic search identified a total of 228 articles of potential interest. Only 10 satisfied the criterion of correlating the role of general dentist and treating halitosis.

Results: Every healthcare provider and especially the general dentist treating the elderly patient for oral malodours must recognise that there is a direct relationship between the oral and general health of the patient. Many studies correlate halitosis with the presence of hyposalivation, periodontal disease, calculus, fixed prosthodontics and dementia. With proper diagnosis, identification of the etiology, timely referrals when needed, steps can be taken to create a successful individualized therapeutic approach for each patient seeking assistance.

Conclusions: For best results, a multidisciplinary approach to diagnosing and treating oral malodours that involves mainly the dentist and physician should be arranged. Early detection of halitosis by the dental practitioner can lead to the improvement of the quality of life for many elderly patients. Development of additional education and practical implementation strategies should be considered to educate general dentists.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

PP11

Revamping oral-systemic medical links in the frail elderly: an epidemic analysis of general health-care data, 2010-2016, of Taiwan

Andy Yen-Tung Teng[1], Yen Chun Grace Liu[1,2]

[1]*Center for Osteoimmunology and Biotechnology Research (COBR), College of Dental Medicine, Kaohsiung Medical University, Kaoshiung City, Taiwan*
[2]*Taiwan Academy of Geriatric Dentistry (TAGD), Kaoshiung City, Taiwan*

Background: Oral-health care and overall medical services have been challenged by the dilemma of growing epidemic in the frail elderly with complex systemic disorders and physical/mental aspects of the comorbidity on ageing (geriatric syndrome), whose evident links vary considerably.

Methods: We employed the extracts of 26 regional reports & national surveys from central health-care database of Taiwan via key-words, outcome measures of the cardiovascular disorders, diabetes, hypertension, strokes & dementia, cancers, specific drugs & poly-pharmacy, etc. and clinical co-variables to address for summing up the critical risks and impacts assessed upon dealing with the subjects' oral-systemic medical conditions of the frail geriatric over the comorbidities vs. mortalities in general population.

Results: Our frail elderly have been impeded by severe burdens of systemic illnesses with high incidences (2010□2016), as only <12% being completely healthy; in parallel to top-rated DM-associated renal dialysis, G-I (e.g., colon, breast, lung) cancers, naso-gastric tubing in long-term care facilities on mortality, and the psychiatric/stress medications, etc.), where they collectively signified much worsened rates of oral health problems (i.e., caries>43%, periodontal diseases>80%, massive missing teeth >86% and dysphagia/chewing difficulty >30%, etc.). Herein, we have summarized quantifiably to address: i) the clinical manifests & medications associated with systemic disorders, osteoporosis, heart diseases and strokes, DM and MRONJ (i.e., 85% of them taking >5 prescribed drugs), ii) notably, 1/4□1/3 vs. 30□40% of the frail elderly carried high rates total edentulism vs. untreated oral diseases, respectively, regardless their socio-economic status, iii) specific bone/muscular -sparing manifests linked to diabetes, dialysis and bleeding complications rendering the outcomes from dental treatments often ineffective.

Conclusions: It is clear that modern oral health-care and therapies involve more than the concerning matters illustrated above; importantly, we must carefully incorporate the risk assessments and outcome-oriented analyses for the frail elderly regarding oro-systemic medical links to ensuring the individual subject's safety & capacities, while engaging the stress produced from dental/medical procedures, so that the long-term prognoses and outcomes be more favorable. The health authorities may consider the exemplified needs of providing incentives to promoting the effective dental treatments for the frail elders who manifest serious systemic disorders with (multi)-comorbidities.

PP12

Development of an oral health literacy instrument for the elderly (>65 years of age)

Pooja Kapoor, Patrick Finbarr Allen, Wong Mun Loke

Faculty of Dentistry, National University of Singapore, Singapore

Background: The world's adult population of 65 years and above, commonly referred to as the "elderly" is rapidly increasing and so are their oral health needs. In the past two decades, applied research revolving around functional health in this population has also included health literacy as one of its core premises. In the geriatric age group, low health literacy is often associated with physical, social and cognitive inabilities due to inadequate chronic disease knowledge, undesirable self-management behaviors, as well as low adherence to health recommendations. The continuous interaction between health literacy and determinants of health as well as health outcomes has been effectively established. However, much work remains to be done to develop instruments measuring oral health literacy across diverse contexts especially in the realm of skill-based attributes of an individual.

Aim: The current study is designed to develop and test an Oral Health Literacy (OHL) instrument for use in the multiracial multilinguistic Singaporean elderly (65+ years of age) as an initial step to assess the skill-based attributes of individuals relevant in making health related choices.

Methods: Delphi method used to reach consensus on the core dimensions (e.g. Access, Understand, Appraise, Apply) targeted in the development of the NUSOHL (NUS Oral Health Literacy Instrument for the elderly) and to establish suitability of the items used to measure oral health literacy within each dimension (ability, skills, knowledge) with respect to the target population, including elderly across varying states of dependency and frailty.

Results: Iterative Analysis still awaited

Conclusions: The global aim of the exercise has been to achieve consensus on the initial item pool relevant to the measurement of oral health literacy in the elderly. It is necessary to address oral health literacy among the geriatric age group to not only improve their health states but also to equip them to make positive behaviour change, improve knowledge base, and empower them to sustain their ability to make suitable decisions in the present as well as the future to come. Inclusion of measures of oral and digital literacy has also been explored.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP13

Translation and preliminary validation of Serbian version of an ageism scale for dental students

Aleksandra Popovac[1], Ivica Stančić[1], Jovana Kuzmanović Pfićer[1], Ljiljana Tihaček Šojić[1], Sanja Peršić[2], Asja Čelebić[2]

[1]*University of Belgrade, School of Dental Medicine, Belgrade, Serbia*
[2]*University of Zagreb, School of Dental Medicine, Zagreb, Croatia*

Background and Objective: Ageism is one of the major barriers for older adults' health care worldwide, including dentistry, since fewer dentists choose additional education in geriatric dentistry. Serbia is a country in economic transition, with growing old population, very susceptible for ageism. Therefore, ageism scale specifically adapted for dental students seems very suitable for validation and use. The aim of this study was to translate and perform a preliminary validation of an ageism scale for dental students in Serbia (ASDS-Serb).

Methods: The 27-item ASDS was translated forward-backward. Serbian version was reviewed for item relevance and content validity by a panel of gerodontology researchers at the School of Dental Medicine, University of Belgrade and was pretested in 30 dental students. The final questionnaire was administered to 129 dental students with clinical experience in geriatric dentistry (8th, 10th and 12th semester). The data were analyzed using Principal Components Analysis (PCA) with an orthogonal, Varimax rotation, in order to define components and their interconnections. Discriminant validity was tested investigating variation related to gender and semester of studies.

Results: The Kaiser-Meyer-Olkin coefficient was 0.647 which was appropriate and Bartlett's Test of Sphericity achieved statistical significance which indicate factorability of correlation matrices $p > 0.0001$. Main components analysis contained 17 questions and revealed 5 components with characteristic values above 1 (eigenvalues) which explain 62.20% of total variance. Scree plot examination showed "elbow" behind the fifth component which was also confirmed by parallel analysis. The five components were associated with: negative view older adults' life and dental treatment (5 items, 3.512), ethical values about older people (4 items, 2.369), comparison to younger adults in dental care (3 items, 1.918), difficulties in medical history taking (2 items, 1.409) and barriers to dental treatment (3 items, 1.365). Discriminant validity revealed statistically significant differences in semester of studies for 2 items in the first component, and in gender for 4 items in the first and fourth components.

Conclusion: The preliminary validation of the ASDS-Serb resulted in 17-item scale with five components. Certain items stand out clearly and may indicate dental students' attitudes towards ageism in future researches.

PP14

Profile of edentulous patients restored at the National and Kapodistrian University of Athens, School of Dentistry, during the past five years and implications in dental education

Ioli Ioanna Artopoulou, **Evangelia Zervou**, Anna Strigoni, Nikolaos Zervos

National and Kapodistrian University of Athens, School of Dentistry, Athens, Greece

Background and aim: Loss of natural dentition is a multi-factorial process mainly attributed to caries and periodontal disease, whereas rehabilitation of edentulous patients most commonly consists of complete denture fabrication. Edentulism usually concerns elderly patients and due to demographic changes the number of denture wearers is expected to increase. The aim of this study was to investigate the sociodemograhic profile of the edentulous patients, restored with complete dentures (CDs) at the National and Kapodistrian University of Athens, School of Dentistry. The profile of this population during the past 5 years was observed, and possible implications in dental education were recorded.

Methods: Dental records of edentulous patients restored by means of CDs at the National and Kapodistrian University of Athens, School of Dentistry, during the years 2014-2019, were evaluated and analyzed in this retrospective study. Descriptive statistics were used for data analyses; means and standard deviations were compared by t-test $(\alpha=.05)$.

Results: From the 915 patients 367 were females, 548 were males. 26,74% were employed, 63,52% were retired and 9.72% were unemployed. 46,07% had maxillary CDs fabricated, 9,7% had mandibular ones, and 44,2% received maxillary and mandibular CDs. In the maxilla, 63,74% of the patients had pre-prosthetic extractions, in the mandible, 40,44% of the patients had pre-prosthetic extractions, and 57,28% of the participants had pre-prosthetic extractions in both mandible and maxilla. In case of the maxillary denture wearers 55,9% had anterior teeth, 35,78% had premolars, and 40,52% had molars extracted. When mandibular CDs were fabricated, 35,95% of the patients had anterior teeth, 22,47% had premolars, and 13,48% had posterior teeth removed prior to CDs fabrication. Finally, when both CDs were constructed 53,58% of the patients had anterior extractions performed, 42,46% had premolar, and 33,08% had molar removed prior to CDs fabrication. Female patients presented with more remaining teeth prior to CDs fabrication (P<.05), whereas most remaining teeth were in the anterior area (P<.05).

Conclusions: As life expectancy increases, the need for CDs fabrication, and repair will still remain in the every-day dental practice. Dentists need to be adequately trained, and become familiar with the basic removable prosthodontic principles.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

PP15

The dental students' perceptions of an interprofessional education course in elderly care

Christina Tsirigoni[1], Sofia Sotiropoulou[1], Maria Fostiropoulou[1], Kalliopi Konstantopoulou[1], Theodoula Adamakidou[2], Fotoula Babatsikou[2], Georgia Gerogianni[2], Alexandra Koreli[2], Marianna Mantzorou[2], Anastassia Kossioni[1]

[1]Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece
[2]Nursing Department, University of West Attica, Athens, Greece

Background and aim: The interprofessional management of the older patients is emphasised in the gerodontology curriculum guidelines. The aim of this study was to investigate the dental students' opinion on an interprofessional education course in elderly care conducted in a nursing home in Athens.

Methods: A pilot interprofessional education course in elderly care was developed with the collaboration of the NKUA Discipline of Gerodontology and the Nursing Department of the University of West Attica. Seven gerodontology and geriatric nursing educators designed the course and developed appropriate electronic educational material that was delivered to the students before the site visits. Sixteen nursing and dental students participated in a half-day interprofessional education course in elderly care. At the beginning of the site visit an introductory discussion was delivered which clarified the aims of the programme. Afterwards, the students, in mixed pairs of two, visited preselected residents in their rooms, interviewed and clinically examined them using dedicated dental and nursing clinical assessment tools, offered health promotion counselling, and finally developed a common care/treatment plan. The individual care plans were discussed in a large-group debriefing session. At the end of the programme the students completed Gibbs reflective practice diaries that were analysed using content analysis.

Results: The qualitative analysis revealed that the dental students experienced feelings of satisfaction from teamworking. They felt privileged to have collaborated with another health discipline and exchange knowledge and skills in geriatric care. They found many of the geriatric nursing assessment tools useful for the dentists and were pleased to educate the nursing students about geriatric oral health. They also felt more respect for the nursing home's staff. This collaboration has broadened their skills in providing holistic and comprehensive care to the older patients. They asked for more curriculum time assigned to the programme and collaboration with more disciplines.

Conclusions: The dental students' perceptions of the pilot interprofessional education programme in elderly care with the Nursing Department was very positive. Both the strengths and the weaknesses that were identified offered the instructors a useful guidance for further course development.

PP16

Stomatological sessions of elderly patients at a Hospital Dental Department in Greece

Flora Zervou-Valvi, **Aikaterini Dimitriou**, Angeliki Giannopoulou, John Fandridis

Dental Department of "Asklepieion Voula's" General Hospital, Athens, Greece

Background and aim: The increase in life expectancy leads to a higher percentage of elderly population in the foreseeable future which implies rise in the prevelance of stomatological diseases. Aim of this study is to define the percentage of stomatological sessions of the elderly in the total sessions of a Hospital Dental Department as well as their health condition and type of oral disease.

Methods: Evaluation and critical analysis of the records of the Stomatological Clinic of a Hospital Dental Department in Greece. Sessions of elderly persons (over 65 years of age) who seeked examination for stomatological problems during the last four years (2016-2019) were categorized according to age, sex, state of general health and type of oral disease.

Results: Analysis showed that:
During these years 456 stomatological sessions were referred to persons over 65 years. These represent 42.45 % of the total number of stomatological sessions and 22.93% of the total number of sessions to persons over 65 years.
Age ranged from 65 to 93 years (mean 73.35 years)
Women outnumbered men (61% females, 39% males).
Percentage 69% of these stomatological sessions were performed to persons who suffered from general diseases, 1% to persons physically, mostly kinetic, handicapped and 1% to persons who had dementia. Only 29% of the stomatological sessions were referred to persons who had no health problem.
The commonest stomatological problems were oral manifestations of general diseases (51%) such as candidiasis and lichen planus, followed by inflammatory diseases (24%) such as lesions related with dentures and osteonecrosis and by tumors (17%) such as irritation fibromas.
Premalignant lesions, mainly leukoplakia, and premalignant conditions, mainly erosive lichen planus, were not rare and constituted more than the one tenth of the sessions.

Conclusions: Significant percentage of the elderly seek care to Hospital Dental Departments for stomatological problems as most of them also suffer from general diseases. An intraoral soft tissue examination is mandatory to every person over 65 years of age, especially to those with comorbidities, as stomatological diseases, among which those with possibility of malignancy, tend to rise with age.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP17

A case series report of inpatients admitted with sepsis of suspected odontogenic origin in a UK District General Hospital and their dental management

Meg Keddie

Surrey and Sussex Hospital Trust, Redhill, United Kingdom

Background: Little is reported about prevalence or management pathways for patients with sepsis of odontogenic origin (SOO) in hospitals without Maxillofacial provision. The age profile of the UK population is shifting rapidly and those >75years old are at increased risk of developing sepsis. Population forecasts predict by 2030 there will be more people with less healthy teeth posing further risk. This report reflects on (SOO) in an acute hospital and dental management. It demonstrates ideal practice where dental ward referrals can be sought onsite on request.

Methods: Dental ward referrals at East Surrey Hospital were retrospectively reviewed between December 2018 and June 2020. Cases of (SOO) were identified and investigated. Admission details, medical history, co-morbidities and dental management were recorded and reflections made.

Results: Three referrals of (SOO) were identified:
1) Case one was admitted with sepsis following maxillary dental clearance and placement of four dental implants in Croatia. Poorly controlled diabetes, raised BMI, poor oral hygiene and remaining untreated mandibular decay rendered her a poor implant candidate. Dental assessment was carried out in intensive care, suture removal, wound debridement and mouth care advice were provided.
2) Case two underwent a failed extraction at his general dentist and was awaiting routine oral surgery input. He then abruptly stopped alcohol consumption and rapidly deteriorated. He was admitted with sepsis, community acquired pneumonia then developed cerebral abscesses. His molar remnants were surgically removed during admission.
3) Case three had had chemo-radiotherapy and intravenous bisphosphonates for metastatic breast cancer, was febrile on admission and complaining of swelling from her root treated lower left molar. Neutropenic sepsis was confirmed and the offending tooth was removed several days later once she had been medically stabilised.
The impact of dental pathology in sepsis should not be underestimated and where possible barriers to dental treatment pathways should be remedied by appropriate commissioning of inpatient urgent dental care.

Conclusions: (SOO) is likely to become a greater burden as patients retain their dentition in advancing age. Failure to adequately commission dental service provision within inpatient settings risks such cases being unable to access the dental care they need.

PP18

Oral hygiene in elderly bedridden patients admitted in a community hospital

Kenichiro Ozaki[1,3], Tomoyuki Nakamura[1], Toyoko Kameyama[2], Yoshie Teshigawara[2], Etsuyo Horikoshi[1], Mayu Motoki[1], Yosuke Kawai[1,3], Satoshi Teranaka[1,4], Shuhei Kurosaki[1], Haruka Tohara[3], Shunsuke Minakuchi[4], Satoru Komatsumoto[5]

[1]*Department of Physical Medicine and Rehabilitation, Ashikaga Red Cross Hospital, Ashikaga, Japan*
[2]*Department of Nursing, Ashikaga Red Cross Hospital, Ashikaga, Japan*
[3]*Dysphagia Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Bunkyo-ku, Japan*
[4]*Gerodontology and Oral Rehabilitation, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Bunkyo-ku, Japan*
[5]*Department of Internal Medicine, Ashikaga Red Cross Hospital, Ashikaga, Japan*

Objective: Oral health is an important component of overall health, well-being, and quality of life in hospitalised patients. In our hospital, dentists and dental hygienists are affiliated with the Department of Rehabilitation and collaborate with doctors, speech-language-hearing therapists, and nurses to provide the necessary care for patients. The aim of this study was to compare the oral health status of bedridden in-patients aged over 65 years with oral intake (OI) and those on nil per oral (NPO) by using "The holistic and reliable oral assessment tool" (THROAT) in a community hospital.

Methods: The study subjects were patients admitted to the Japanese Ashikaga Red Cross Hospital between April 2018 and March 2019 who were able to take them orally during hospitalisation. All subjects underwent examination by a nurse using THROAT within 24 hours of admission following which, they were divided into two groups, patients with OI and those on NPO. The oral health of patients in these two groups was then compared based on the highest THROAT scores.

Results: A total of 646 patients (males, 331; females, 315; mean age, 80 ± 8 years) were selected for the study. The major diagnoses of the patients were cardiovascular disease (n=112; 17%), nervous system disease (n=110; 17%), trauma (n=106; 16%), respiratory disease (n=104; 16%), digestive system disease (n=94; 15%), and other diseases. The average maximum THROAT score was 4.0 ± 3.3 in the NPO group and 3.0 ± 2.6 in the OI group; the score was significantly lower in the OI group ($P<0.0001$).

Conclusion: This study demonstrated that oral health was poorer in the NPO group compared to the OI group. In the bedridden NPO condition, weakening of the oral mucosa due to malnutrition, increased airway secretions due to dysphagia, and oral contamination of secretions were suggested. Thus, the results of our study indicate that patients on NPO should be provided more effective oral care than those with OI. In future, we plan to identify the characteristics of patients with high THROAT scores.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP19

Oral health status of head and neck oncology patients undergoing pre-radiotherapy dental assessment: a 12-month retrospective study

Neill Markey, Ciaran Moore, Gerry McKenna

Restorative Dentistry Department, Centre for Dentistry, Belfast Health and Social Care Trust, Belfast, United Kingdom

Background and aim: To determine the oral health status, and urgent treatment needs, of dentate head and neck cancer (HANC) patients undergoing pre-radiotherapy dental assessment in Northern Ireland.

Methods: Dental records of patients who had previously attended the Centre for Dentistry, Belfast, in 2019, were reviewed. Clinical and radiological data relating to the pre-radiotherapy dental assessment of dentate HANC patients prior to radiation treatment were examined. Analysis was conducted for the entire calendar year of 2019.

Results: A total of 134 dentate HANC patients attended for pre-radiotherapy dental assessment in 2019. The average age of the patient cohort was 60 years. The age range was 31-81 years. 67.2% of patients were male and 32.8% were female. Approximately half (52.2%) of patients were aged 60 years or older. Just over two-thirds (69.4%) were registered with a general dental practitioner. Regarding pre-radiotherapy dental status, approximately two-thirds (68.7%) of patients were diagnosed with dental caries. Those with dental caries, had a mean number of 3.4 carious teeth. Approximately three-quarters (74.6%) of pre-radiotherapy patients had periodontitis. Furthermore, the presence of apical pathology was noted in 51.5% of patients. More than half (55.2%) required at least one dental extraction, with an average of 4.2 teeth removed per patient. Dental restorations were required for a quarter (26.9%) of patients and 5.2% needed root canal treatment.

Conclusions: Dentistry plays an important role in the HANC multidisciplinary team. During the calendar year of 2019, dentate HANC patients presented with significant dental disease and treatment need in Northern Ireland. Early dental assessment, and intervention, is necessary to improve patient outcomes. Advice on prevention forms a vital role in management of HANC patients.

PP20

Urgent dental care for Hospital inpatients: A survey of pathways for different oral conditions within Hospitals across England

Natalie Bradley

Surrey & Sussex Healthcare Trust, Redhill, United Kingdom

Background and Aim: Patients in hospitals may experience urgent dental problems during their stay which could range from toothache, to a lost denture, to a sharp tooth affecting their eating. This could potentially impact on their recovery and hospital staff may not have the skills to identify and appropriately manage these conditions. This review plans to assess what urgent dental pathways are in place for hospital inpatients and clarify pathways and commissioning arrangements

Method: Data from 43 hospitals nationally was analysed which had been collected by Mouth Care leads in each Trust.

Results: Just over half of Trusts had pathways in place for urgent dental problems for their inpatients, which varied according to the urgent dental problem. A total of 91 dentures were lost in the past 3 years costing in total £90,241.17 which is likely to be an underestimate. Commissioning arrangements were unclear, with some services using their dental trainees to address urgent dental needs.

Conclusions: Access to urgent dental care for inpatients in hospitals is important to reduce length of stay and improve the quality of life of patients while in hospitals. Patient pathways for urgent dental problems need improvement as there is little consistency across England, often depending on access to other services within a hospital such as a dental department. Further clarification is required locally to define remuneration arrangements with commissioning teams and the responsibility of access to urgent care made clear.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP21

Bleeding complications after tooth extractions in patients taking oral anticoagulant, simple or dual antiplatelet therapy. A retrospective study

Emmanuela Maisi[1], Konstantinos Vlasiadis[1], **Maria Alexaki[2]**, Georgios Skoulas[1], Evangelia Vailaki[3], Eleni Psalidaki[3], Evangelia Bogosian[1]

[1]*University General Hospital of Heraklion, Heraklion, Greece*
[2]*National Health Center, Heraklion, Greece*
[3] *Private Dentist, Heraklion, Greece*

Background and aim: Due to the increasing life expectancy and the ageing of the population, dental management of patients taking oral anticoagulant or antiplatelet therapy for the prevention of cardiovascular and celebrovascular diseases is an increasingly common clinical problem.
The aim of this study was the evaluation of the effect of oral anticoagulant or antiplatelet therapy in patients who underwent tooth extractions in the Dental Clinic of University General Hospital of Heraklion, from January to December 2019.

Methods: This was a retrospective study. Data were obtained from the dental records maintained at the Clinic. They included gender, age, medical history, type of anticoagulant or antiplatelet therapy, dental procedures and postoperative bleeding. All statistical controls were performed using SPSS, Version 24.0.

Results: 178 individual patients (114 males and 64 females) taking oral anticoagulant, simple or dual antiplatelet therapy were treated in the Dental Clinic. They underwent 699 tooth extractions in 267 sessions.
41 patients taking oral anticoagulants underwent 119 simple and surgical tooth extractions in 58 sessions. All patients had an INR value within therapeutic range.
109 patients taking simple antiplatelet therapy (78 aspirin, 31 clopidogrel) underwent 451 simple and surgical tooth extractions in 166 sessions.
28 patients receiving dual antiplatelet therapy (aspirin 100 mg and clopidogrel 75 mg) underwent 129 simple and surgical tooth extractions in 43 sessions.
Local hemostatic measures, such as suturing and collagen sponges, were applied in all cases. Detailed instructions were given to all patients after operation.
5 patients had bleeding complications. All of them were taking oral anticoagulant therapy. All complications were controlled with local hemostatic measures as pressing with a gauge, new suturing, collagen sponges and mouthwashes with tranexamic acid.

Conclusions: Patients taking oral anticoagulants with an INR value within therapeutic range and patients taking simple or dual antiplatelet therapy may undergo tooth extractions without interruption of their treatment. Appropriate local hemostatic measures must be provided in advance. Cases of bleeding complications are easily controlled with local hemostatic measures.

PP22

Postoperative bleeding after tooth extractions in patients taking New Oral Anticoagulants. A retrospective study

Evangelia Bogosian[1], **Emmanuela Maisi[1]**, Konstantinos Vlasiadis[1], Georgios Skoulas[1], Evangelia Vailaki[2], Maria Alexaki[3], Maria Petrodaskalaki[1]

[1]*University General Hospital of Heraklion, Heraklion, Greece*
[2]*Private Dentist, Heraklion, Greece*
[3]*National Health Center, Heraklion, Greece*

Background and aim: The New Oral Anticoagulants (NOAs) have been introduced into clinical practice and are administered to patients with indication for anticoagulant therapy. The NOAs are effective and safe, have predictable anticoagulant effect and insignificant interactions with drugs and food.
There are no guidelines for patients taking NOAs who are about to undergo minor oral surgery. In the Dental Clinic of University General Hospital of Heraklion the practice was to omit the morning dose for dabigatran and apixaban and delay the dose for rivaroxaban on the day of the operation. Patients older than 80 years of age or with renal or liver impairment are suggested to omit one more dose of dabigatran or apixaban respectively. The aim of this study was to evaluate the bleeding complications in patients who underwent tooth extractions in the Dental Clinic during 2019.

Methods: This was a retrospective study. Data were obtained from the dental records maintained at the Clinic. They included gender, age, medical history, drug type, dental procedures and postoperative bleeding. All statistical controls were performed using SPSS, Version 24.0.

Results: 30 males and 19 females, mean age 71.2 years, taking NOAs were treated in the Dental Clinic. 8 (16,32%) patients were taking dabigatran, 24 (48,97%) apixaban and 17 (34,71%) rivaroxaban. They underwent 196 tooth extractions in 74 sessions.
Local hemostatic measures, suturing and collagen sponges, were applied in all cases. Detailed instructions were given to all patients after operation.
2 (4.08%) patients had bleeding complications.1 patient taking apixaban and 1 taking rivaroxaban. Both cases were controlled with local hemostatic measures as pressing with a gauge, new suturing, collagen sponges and mouthwashes with tranexamic acid.

Conclusions: NOAs, a new challenge for Dentistry, are likely to become more widely prescribed because of their properties. Omitting the morning dose of dabigatran and apixaban or delaying the dose of rivaroxaban is a quite safe protocol for tooth extractions, in most cases. The dentist must take into account the patient's age, physical status and laboratory tests. Further studies are needed to establish evidence-based guidelines for the management of patients receiving NOAs.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP23

Oral hygiene methods in the prevention of ventilator associated pneumonia

Israa Naeem Ahmad

University of Debrecen, Faculty of Dentistry, Debrecen, Hungary

Background and Aim: In the UK, ventilator associated pneumonia (VAP) accounts for 25% of all intensive care unit infections with a mortality rate ranging from 24% to 50%. Of the patients admitted to UK intensive care units, 46.5% are 65 years and older.
Studies have found that patients suffering from VAP often have elevated levels of gram negative rods such as Pseudomonas aeruginosa and Enterobacteriaceae amongst others in their oral microbial flora. These pathogens are believed to first colonise the oral cavity in high numbers before spreading to the lower respiratory tract.
Our aim has been to explore the impact of various oral hygiene methods on reducing the number of pathogenic microbes in the oral cavity and thus the risk of contracting VAP in intensive care unit patients.

Methods: We have used literature and studies published between 2005 and 2020 using a PubMed search as well as evidence and guidelines published by the National Institute for Health and Care Excellence in the same timeframe.

Results: Studies have found that by implementing certain oral hygiene measures such as mechanical cleaning with toothbrushes, the use of oral antiseptics like chlorhexidine and povidone-iodine, pilocarpine injections to stimulate salivary flow or a combination of these can significantly reduce the risk of VAP. One study found that the use of chlorhexidine reduced the risk of VAP by 28% compared to when oral care did not include the use of oral antiseptics. With regards to toothbrushing, it was found in one study that toothbrushing alone had no significant effect on the risk of VAP. Another study found that there was no evidence to support that toothbrushing in conjunction with oral antiseptics reduced the risk of VAP greater than with the use of oral antiseptics alone.

Conclusions: There is sufficient evidence to support the use of oral hygiene measures as part of VAP prevention protocols. Reduction of risk varies depending on the method of oral hygiene and the manner and frequency of application.

PP24

Using role-substitution in care-homes to improve oral health: A definitive trial

Paul Brocklehurst[1], Gerry McKenna[2], Georgios Tsakos[3], Sarah Baker[4], Ivor Chestnutt[13], Craig Smith[5], Ciaran O'Neill[2], Zoë Hoare[1], Lynne Williams[1], Vicki Jones[6], Michael Donaldson[7], Anup Karki[8], Caroline Lappin[9], Kirstie Moons[10], Fiona Sandom[10], Mary Wimbury[11], Lorraine Morgan[12], Karen Shepherd[12]

[1]Bangor University, Bangor, United Kingdom
[2]Queen's University Belfast, Belfast, United Kingdom
[3]University College London, London, United Kingdom
[4]University of Sheffield, Sheffield, United Kingdom
[5]University of Manchester, Manchester, United Kingdom
[6]Aneurin Bevan University Health Board, Wales, United Kingdom
[7]Northern Ireland Health and Social Care Board, Northern Ireland, United Kingdom
[8]Public Health Wales, Cardiff, United Kingdom
[9]South Eastern Trust, Northern Ireland, United Kingdom
[10]Health Education and Improvement Wales, Cardiff, United Kingdom
[11]Care Forum Wales, Wales, United Kingdom
[12]Patient and Public Involvement, Wales, United Kingdom
[13]Cardiff University, Cardiff, United Kingdom

Background and aim: Despite a high level of need, dental service provision in residential care in the United Kingdom is poor, with little emphasis on prevention. Access to domiciliary services is difficult and unscheduled care for dental problems (including hospital admissions) is common, complex to deliver and expensive. There is increasing evidence that Dental Care Professionals (DCPs) could offer an alternative to using dentists to meet the future challenges in dental public health. The aim of this study is to undertake a cluster randomised clinical trial to test a care-home intervention delivered solely by DCPs.

Methods: 280 residents in 40 care-homes across Wales, Northern Ireland and London will be recruited. Care-homes will be randomised into one of two arms: DCP intervention or 'treatment as usual' using a dynamic adaptive algorithm. The primary outcome will be the Silness & Loë plaque index. Secondary outcomes will include bleeding on probing, pain, episodes of unscheduled care, dental caries and oral health related quality of life. Five completers per care-home provides 90% power to detect a 0.19 difference in proportions of those residents who experience a 50% reduction in their mean Silness-Löe Plaque Index at six-months. Further measurements will be taken at twelve-months to test the sustainability of any effect seen. The trial will have an internal three-month pilot with stop/go rules using ACCEPT criteria.

Dental Therapists will visit care-homes in their locality every six-months and Dental Nurses will visit every month for the first three-months and then three-monthly afterwards. The former will oversee the clinical management of eligible dentate residents, whilst the latter will promulgate advice to improve the day-to-day prevention offered to residents based on Delivering Better Oral Health (e.g. fluoride application, tooth-brushing instruction and diet advice). Dental Nurses will act as human intermediaries in the care-homes to 'champion' oral health amongst care-home managers and staff.

Results: The study will start in January 2021, due to COVID-19.

Conclusions: Results will be disseminated via academic, service, policy, care-sector and patient forums.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP25

Examination of factors associate with food form in long-term care facilities

Maaya Takeda[1], Kensyu Taira[1], Seitaro Nakazawa[1], Takae Matsusita[1], Miyako Kondo[1], Kazutaka Okada[1], Yutaka Watanabe[1], Yutaka Yamazaki[1], Junko Nakajima[2], Yuji Sato[3], Mitsuyoshi Yoshida[4]

[1]Gerodontology, Department of Oral Health Science, Faculty of Dental Medicine, Hokkaido University, Sapporo, Japan
[2]Department of Oral Medicine and Hospital Dentistry, Tokyo Dental College, Japan
[3]Department of Geriatric Dentistry, Showa University School of Dentistry, Japan
[4]Department of Advanced Prosthodontics, Hiroshima University Graduate School of Biomedical & Health Sciences, Japan

Background and aim: The aim of this study is to examine the factors which relate to dietary intake status (food form) of the long-term care facility (LTCF) residents, and to verify the considerable factors for the elderly requiring nursing care to choose the proper food form.

Methods: This study surveyed 889 residents from 37 LTCFs in Japan.
We evaluated basic information (age, gender, Body Mass Index: BMI), food form (swallowing-adjusted diet class), Barthel Index(BI), Clinical Dementia Rating, eating and swallowing function by simple evaluations, and the number of present teeth / functional teeth, Oral Diadochokinesis, Repetitive Saliva Swallowing Test, Modified Water Swallowing Test (MWST).
In order to clarify the factors associate with food form, the subjects who have good nutrition with oral intake were categorized into two groups: Dysphagic Diets (DD) and Normal Diet (ND). The logistic-regression analyses were tested to detect oral function which associate to their food form.

Results: Seven hundred and seventy residents were divided into DD group (n=307, 39.9%) and ND group (n=463, 60.1%). Objective assessments (OR, 95%CI, p-value): BMI (0.884, 0.835-0.937, p<0.001), BI (0.961, 0.950-0.972, p<0.001), the number of present teeth (0.971, :0.949-0.993, p=0.010)/ functional teeth (0.952, 0.934-0.970, p<0.001), MWST (0.791, 0.713-0.878, p<0.001) were significantly associated with the discrimination of DD and ND. In addition, simple evaluations: swallowing problems (1.961, 1.056-3.64werewas also significantly associated with the discrimination of food forms.

Conclusions: The screening by these simple evaluations can help to grasp the discrepancies between food form and eating abilities of LTCF residents, and the appropriate food form will be provided for the residents. And if these evaluations can be carried out by the nursing caregiver periodically, it seems to be possible to prevent the accident such as malnutrition, pneumonia, asphyxia, and aspiration of the elderly with the swallowing dysfunction.

PP26

Food-related oral discomfort in elderly people: A cross sectional survey comparing oral discomfort in French independently living Elders and Youngers adults

Adeline Braud[1,2], Flore Lourtioux[3], Pierre Picouet[3], Isabelle Maître[3]

[1]UFR Odontologie, Université de Paris, Paris, France
[2]Laboratoire de Neurobiologie Oro-faciale, EA4375, Université de Paris, Paris, France
[3]USC 1422 GRAPPE, Université Bretagne Loire, Ecole Supérieure d'Agricultures (ESA)- INRA, SFR 4207 QUASAV, Angers, France

Introduction: Discomfort encountered during oral processing may cause food avoidance and increase the risk of malnutrition in older adults. The aim of the present survey was to compare oral status and oral discomfort in senior and younger people.

Materials and methods: Oral discomfort and oral status were assessed in 122 participants divided into a senior group (65-83 years) and a control group (35-64 years). A analysis of variance, a Pearson Chi-square and a stepwise binary logistic regression analysis were used to identify categorical variables associated with oral discomfort, including age, oral health-related quality of life, saliva secretion (resting and stimulated saliva), occluding support (Occlusal Functional Units and dental status), oral diseases (DMFT and periodontal status), and denture use.

Results: Oral discomfort was evoked by 52 participants (42.6%), concerned mainly teeth (59.6%), gums surrounding teeth (50%), and the tongue (15.4%) and had a mean±SD intensity of 4.7±2.4. Food-evoked oral discomfort concerned 34 participants (27.9%) and varied according to food texture, temperature and taste. Age alone had no effect on oral discomfort ($Chi2=0.461$; $p=0.497$). The likeliness of experiencing oral discomfort was increased in participants having strictly fewer than 7 OFUs ($OR=2.958$; $CI95\%=1.065-8.212$; $p\square0.05$), poor ($OR=24.177$; $CI95\%=5.531-105-67$; $p\square0.05$) or average oral health-related quality of life ($OR=7.916$; $CI95\%=2.950-21.23$; $p\square0.05$). One-way ANOVA showed significant interactions between Oral health-related quality of life ($F_{(2,121)}=26.588$; $p\square0.05$; $\eta 2p=0.31$) was a significant factor of the intensity of oral discomfort.

Conclusion: Poor oral health conditions may generate oral discomfort with foods, and thus affect mealtime experience.

PP27

Masticatory function and nutritional intake in the independent elderly: A systematic review of the literature

Francesco Bassi, Elisabetta Bellia

Prosthodontics, Dental School, Dept. of Surgical Sciences, Turin University, Turin, Italy

Aim of the study: An important number of the elderly have chewing problems due to the absence of dental elements or the use of incongruous prostheses. This element has always been considered to be in association with dietary deficiencies of macro and micro nutrients.
The aim of the study was to investigate the association between mastication and nutrients intake by means of a literature systematic review.

Materials and methods: The following data base were used: PubMed, Web of Science, Cochrane Library, Embase, Tripdatabase. Articles were selected using the key words "denture" OR "mastication" AND "nutrition" OR "elderly". The search comprised articles written in English and published between 1991 and 2018. Overall, 1208 studies were analyzed, 23 fulfilled the inclusion criteria, among which 5 cross-sectional studies and 18 clinical trials.

Results: 2 cross-sectional studies reported that a better masticatory performance provides the elderly with a higher micro and macro-nutrients intake, in particular vegetables and fibers, while the other 3 studies didn't highlight any differences.
6 RCTs showed an increased macro and micro-nutrients intake after inserting a new prosthesis or following the improvement of masticatory conditions, while the other 12 RCTs didn't show any variations.

Conclusions: Nutrients intake in the elderly depends not only on oral conditions and masticatory performance, but the influence of other factors is suggested. Nutritional counseling is an important factor to improve nutrients intake in the elderly and it is recommended to be associated with the prosthetic rehabilitation treatment.

PP28

Oral health status and nutritional habits as predictors for developing Alzheimer's disease

Ivica Stančić[1], Aleksandra Popovac[1], Ljiljana Tihaček Šojić[1], Irena Mladenović[3], Jelena Krunić[3], Sanja Peršić[2], Asja Čelebić[2]

[1]University of Belgrade, School of Dental Medicine, Belgrade, Serbia
[2]University of Zagreb, School of Dental Medicine, Zagreb, Croatia
[3]University of East Sarajevo, Faculty of Medicine, Foča, Bosnia and Herzegovina

Background and Aim: Poor oral health, mainly tooth loss, has been suggested to pose a risk factor for Alzheimer's disease (AD). The nature of that relationship could be explained by mastication deficit and nutritional status. Also, the influence of nutritional parameters on cognitive impairment has been documented. Aim of this research was to investigate whether poor dental status and different nutrition habits can be potential separate or associated risk factors for development of the AD.

Methods: Study sample included 116 patients with AD and 63 controls. Sociodemographic variables were investigated as factors potentially associated with AD. Dental examination included recording of number of natural teeth, presence of fixed or removable dentures, and number of functional tooth units (FTU). Nutritional status analysis included: qualitative nutrition information, body mass index (BMI), serum albumin level, food consistency and a need of assistance in feeding. Regression analysis was used to investigate the predictors for AD development.

Results: Variables with significant difference between groups, which entered into the binary regression analysis, were: marital status, residence, number of total FTU (no matter whether the contacts were between natural teeth or dentures), eating meat/fish and fruits/vegetables, food consistency, and serum albumin level. Logistic regression analysis showed that being single/widowed/divorced, eating more meat/fish or fruit/vegetable, eating blended/mashed/liquid food, having low level of serum albumins, and having less FTU were significant predictors for developing dementia.

Conclusion: Fewer occlusal contacts, consumption of soft food and lower serum albumin levels can be considered as associated risk factors for AD.

PP29

Food oral processing indicators and related concepts in chewing performance for older adults

Maria-kleio Kyriazi, Vassiliki Anastassiadou

Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki (A.U.TH.), Thessaloniki, Greece

Background and **aim**: The sensory food pleasure is mainly relying on food's organoleptic properties. It affects food consumption, while oral impairments often met in older people, further impact on food selectivity , as they harm perception regarding texture and flavour release. Overall, oral health impacts on eating capability and food comfortability.
Food breakdown, salivation and swallowing are essential components for food acceptance, which by driving the modulation of texture, taste and aroma perception provide eating comfort.
Bolus formation is a significant challenge for the older population, suffering from oral disease. Tooth loss removes mechanic stimulation and leaves an altered texture perception in denture wearers, who require well-balanced flavour and texture framework to meet old age-specific nutrient needs.
This review aimed to investigate relationships between oral food processing descriptors to relevant concepts to establish constructive communication between the food industry, health policies and professionals.

Materials: Two independent examiners conducted a literature search via electronic databases using appropriate keywords. Throughout a predefined review process, they identified relevant published articles in English. Sixteen records were identified which were included for quality and systematic assessment.

Results: Comfortability and sensory characteristics: Poor dentition and low stimulated salivary rate (SSR) are associated with muscle and dental pain, together with an altered perception of stringy texture and lower perceived hardness. Older people reported a burning sensation during eating.
Eating capability: Older people perceived harder and fibrous structures as challenging to process food orally. The biting force was strongly dependent on dental status. Hand-gripping force significantly correlated with tongue pressure and biting force.
Food selectivity: Oral discomfort related to food avoidance was significantly increased with fewer functional tooth-units and GOHAI summary-scores, indicating poor and average oral health-related quality of life. The number of missing teeth, denture use, mucosal disease presence and SSR, also influenced eating sensory experience and consequently the modulation of the hedonic aspect of food intake.

Conclusion: Future studies should explore a broader set of oral descriptors and potential adapting factors and consider the age-related impairment impact on the food products perception for developing adapted functional foods for the elderly population.

PP30

Nutritional deficiencies and their impact on oral health

Israa Naeem Ahmad[1], Prabhudev Patil[2], Kyoung Chan Kim[2]

[1]University of Debrecen, Faculty of Dentistry, Debrecen, Hungary
[2]University of Debrecen, Faculty of Medicine, Debrecen, Hungary

Background **and Aim**: Around the world, malnutrition has detrimental effects both physically and mentally to **humanity**. Our aim has been to see the effects more specifically related to the oral cavity and surrounding tissues.
Malnutrition is a quite common, and treatable, problem. Socioeconomic, environmental, and educational statuses all play a role in this vicious cycle of malnutrition causing oral cavity ailments leading to malnutrition.
Studies have found that those suffering from malnutrition have, amongst other debilitations, a higher rate of dental caries, lowered capacity of tissue healing, and inadequately functioning salivary glands.
The elderly are more prone to this as our bodies naturally lose strength and efficiency during the ageing process. The dental status of the elderly is a leading cause of malnutrition, as their deteriorating oral cavities, non-idealized diets (e.g. tea and toast diet), loss of physical motor skills (brushing/flossing), and usage of certain medications all play a role.

Methods: Using a variety of literature and studies ranging from as early as 2010 to 2020, including PubMed searches, we were able to evaluate and summarize the data into this presentation.

Results: Studies have found that certain physical ailments are causally related to vitamin and mineral deficiencies (e.g. angular cheilosis). Our research has shown that we can categorize these effects regionally by the periodontium, pulp and periapical regions, oral mucosa, and immediately surrounding tissue.
Vitamin B deficiencies led to oral mucosal lesions, along with some specifics such as periodontal lesions, glossitis, recurrent aphthous stomatitis.
Vitamin C deficiency leads to scurvy and impaired wound healing.
Vitamin D deficiency leads to bone abnormalities, delayed eruption, and poor calcium metabolism.
Multivitamin supplementation has been shown to be nearly as effective as dietary replacement in those suffering from oral manifestations of physical problems.

Conclusions: Though vitamin and mineral deficiencies lead to poor oral health, the treatment is not as intensive as the manifestations. Increased awareness of dietary choices, reminders to brush/floss on a daily basis, and regular patient recall with dentists all contribute to a happy, healthy oral cavity.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP31

Difficulty in getting out of bed: EpiFloripaIdoso cohort multinomial analysis

Daniela de Rossi Figueiredo, **Ana Lucia Ferreira de Mello**

Federal University of Santa Catarina, Florianópolis, Brazil

Objective: To analyze the factors associated with the aged who stopped having, started having or maintained the difficulty to get out of bed.

Methods: Longitudinal, population and home-based study with elderly people over 60 years old, in Florianópolis city, Southern Brazil, in 2009/2010 (n = 1,705) and 2013/2014 (n = 1,198), with sampling in two stages, census sectors and households. The outcome was obtained from the question of activities of daily living: "Do you have any, little, much difficulty or are you unable to lie down / get out of bed?" and analyzed the trajectory according to stop having, start to have or maintain some difficulty in getting out of bed, according to sociodemographic factors, use of medication, presence of comorbidities and self-reported oral conditions, by multinomial analysis.

Results: Stop having difficulties were associated with better schooling, use of at least 5 medications and the presence of comorbidities. To have difficulty were associated to be older, those from low-income strata, and who used 5 drugs or more. Women, older, those from low-income strata, with comorbidities, who were using 5 or more medications, with symptoms of dry mouth and difficulty in eating because of their teeth, had a greater chance of maintaining the disability during the period evaluated.

Conclusion: Besides general aspects, oral problems, such as the difficulty of chewing and symptoms of dry mouth, increased the chances of maintaining the difficulty to get out of bed. This result should be considered when planning the care in the context of functional disability, contributing to the organization and provision of health services for homebound elders.

PP32

Oral health of homebound elderly people in Florianópolis city, Southern Brazil

Bubacar Embaló, Thayna Ferreira Simões Oliveira, Mateus Cardoso Pereira, **Ana Lucia Ferreira de Mello**

Federal University of Santa Catarina, Florianópolis, Brazil

Objective: To describe the oral health condition of homebound elderly people, registered by the primary health care public services, in Florianópolis city, Southern Brazil.

Method: Cross-sectional, home-based, epidemiological study with a random sample. Data collection was performed through a closed questionnaire, answered by the elders or the caregiver, and clinical examination, and included sociodemographic information, number of teeth and tooth root remains, presence of caries lesions, dental mobility, visible dental plaque, mucosal lesions, and self-perception of dry mouth, difficulty in eating hard foods and assistance with oral hygiene.

Results: The final sample was composed by 123 elders, from 61 to 107 years of age; 62.6% women; 60% confined for up to 5 years; with daily caregiver in 87% and 89.4% considered fragile. Regarding the presence of teeth, 56.1% were edentulous and 70% had up to 6 teeth. Tooth root remains was observed in 12.8%, untreated caries lesions in 25.2%, visible plaque in 69.9%, dental mobility in 57.7% and mucosal lesions in 8.9% of the elderly. Discomfort with dry mouth was reported by 50.4% and 56% were unable to eat hard foods when compared to the last 6 months; 45.5% needed assistance with daily oral hygiene.

Conclusion: The homebound elders studied have poor oral health conditions due to the presence of oral problems that require intervention. These study points out the need for dental homecare within the scope of public health services at the primary health care level.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP33

Challenges and strategies for engaging individuals with Alzheimer's disease in research

Raquel Araujo, German Villoria, Anna Leão, Eduardo Feres-Filho

Division of Graduate Periodontics / School of Dentistry - Federal University of Rio De Janeiro, Rio De Janeiro, Brazil

Background and aim: Alzheimer's disease (AD) is a chronic, neurodegenerative and progressive condition. It is clinically characterized by deterioration of language, memory, problem-solving and other cognitive domains. This disease represents the leading cause of dementia worldwide. The demand for original research is increasing as number of cases of dementia is expected to rise to about 152 million people by 2050. The aim of this study was to review the challenges and strategies for engaging individuals with AD in research.

Methods: A literature search was conducted on PubMed and Scopus, including articles in English, published in the last 10 years, using the keywords "Alzheimer's disease", "dementia", "research participation" and "recruitment".

Results: The challenges involved in this kind of research include ethical practice, proper recruitment, financial resources, physical structure, communication skills and commitment of caregivers. The ethical practice means to contemplate the right to be involved in the research and the protection of potentially vulnerable people. A peculiarity about recruitment is the fact that, usually, the initial communication is made with intermediaries or "gatekeepers". In many low- and middle-income countries the familiar caregiver manifests emotional overload which, occasionally, can lead to questioning the intention of the research recruitment. Despite no easy solutions exist to solve those issues, the communication terminology ought to be compatible with the person's schooling and specific or difficult terms should be avoided. Researchers might use different terminologies for a given situation, so as to ensure effective contact strategies. Contrasts between countries must be considered since the experiences are different. Participating in research is important for persons with AD owing to the fact that this enhances their autonomy and social engagement, fulfill their needs to be useful and value them as a person.

Conclusions: Albeit there are many challenges in conducting a research with people with AD, there exist viable strategies for successful enrollment. People with AD are able to express their feelings, preferences, experiences and therefore research must be performed in a structured manner that makes participation plausible for patients and caregivers.

PP34

Factors associated with hyposalivation among community-dwelling older Japanese population in 6-year longitudinal study

Yuki Ohara[1], Hisashi Kawai[1], Maki Shirobe[1], Keiko Motokawa[1], Yoshinori Fujiwara[1], Hunkyung Kim[1], Kazushige Ihara[2], Shuichi Obuchi[1], Ayako Edahiro[1], Masanori Iwasaki[1], Yutaka Watanabe[3], Hirohiko Hirano[1,4]

[1]Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan
[2]Hirosaki University, Hirosaki, Japan
[3]Hokkaido University, Sapporo, Japan, [4]Tokyo Metropolitan Geriatric Hospital, Tokyo, Japan

Background: Saliva plays an important role in regulating oral health. Hyposalivation, which is an objectively measurable decrease in salivary flow, is highly prevalent in older adults. However, few reports have used longitudinal data to equate the incidence and associated factors of hyposalivation. Thus, the aim of the present longitudinal study was to investigate the incidence of hyposalivation and associated factors in community-dwelling older people in Japan.

Methods: The study population comprised 220 persons (80 men and 140 women) aged 65–86 years at baseline. They underwent comprehensive health check-ups, which included an oral examination, a face-to-face interview assessing questionnaires regarding depressive symptoms, appetite, medical history, health behavior, and functional capacity. The oral examination measured indices of oral health status: number of present teeth, occlusal force and amount of resting saliva. Hyposalivation was determined on the basis of unstimulated salivary flow rate using the modified cotton roll method. Appetite was measured using the Japanese version of the Council on Nutrition Appetite Questionnaire (CNAQ-J), which lower scores indicated deterioration in appetite.

Results: The development of hyposalivation was 19.5% during the 6-year observation period. Multiple logistic regression analysis revealed that CANAQ-J score was significantly associated with hyposalivation (adjusted odds ratio, 0.85 [95% confidence interval, 0.73-0.99]) even after adjusting for potential confounding factors, such as age, sex, body mass index, depressive symptom, comorbidities, polypharmacy, smoking, and number of teeth.

Conclusions: Loss of appetite is independently correlated with and a risk factor for hyposalivation in older adults. Anorexia of aging could have negative effects on the salivary flow rate.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP36

Retrospective determination of the oral cavity cancer among old patients

Maja Weremko-Fałdyga, Marlena Pedowska, Karolina Thum-Tyzo, Joanna Korniecka-Hopkała, Renata Chałas

Department of Oral Medicine, Medical University of Lublin, Lublin, Poland

Background: Recently, there is a growth of the number of seniors suffering from the oral cavity cancer to observe. Most of them are not recognised in an early phase of its development, what results in constant low survival rate of the old patients.

Aim: The aim of the study was to determine the oral cavity cancer occurrence frequency concerning patients coming from Lublin voivodeship (Poland) respectively during period of 10 years.

Methods: The group comprises of 132 persons, 82 med and 50 women. They were divided into 3 groups according to the age: under 44 years, 45-59 and over 60 years and the presence of oral cancer was checked on their medical history.

Results: In the examined group 102 (77,27%) diagnoses cases of tumors constituted as malignant, however they were clearly occurred at men than at women. They were most often in the age group 45-59 (84 cases) and over 60 years (47 cases). Research also showed that tumors were mostly placed in the

 bottom of the oral cavity, on the tongue and in the mandible. In men the oral cancer was mostly located in the floor of the oral cavity, when it comes to women – on the tongue.

Conclusions: The study group comprised high prevalence of the oral cavity cancer in older patients. Therefore, the detailed examination of the oral cavity is a crucial in oral cancer early detection.

PP37

Oral health satisfaction of community-dwelling older adults and nursing home residents

Maria Tsichlaki, Kalliopi Konstantopoulou, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: Older adults' oral health satisfaction seems to be associated with certain sociodemographic factors and oral health status. The aim of this study was to investigate the oral health satisfaction of community-dwelling older adults and nursing home residents.

Methods: Community-dwelling older adults who visited a municipal health clinic (n=23) and residents of a nursing home in Athens (n=29) were interviewed and clinically examined using portable dental equipment. Their demographic characteristics were recorded, as well as their smoking habits, the number of natural teeth and the use of removable prostheses. The satisfaction with their own oral health and the association with the aforementioned factors was investigated. Data were analysed using descriptive statistics and bivariate analyses. The level of statistical significance was set al P≤0.05.

Results: The mean age of the older adults (17 males, 35 females) was 79.81 ± 9.39. A total of 15.4% were active smokers. A total of 28.8% had more than 20 teeth, 46.1% had 1-20 teeth, whereas 21.2% were completely edentulous and 32.7% were denture wearers. With reference to the oral health satisfaction, a total of 26.9% were not satisfied, 28.8% reported moderate satisfaction and 40.4% were satisfied with their own oral health. Bivariate analyses showed no statistically significant association between oral health satisfaction and sex, age, smoking habits, number of natural teeth and use of removable dentures. Moreover, there were no differences in oral health satisfaction between community-dwelling older adults and nursing home residents.

Conclusions: Under the limitations of the present investigation, more than 40% of the older participants were satisfied with their oral health, irrespective of various general and dental factors. Future studies in a larger sample should be conducted to thoroughly investigate the objective indicators which may affect oral health satisfaction of Greek older adults.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

PP38

Basic properties of masticatory function test kit using glucose containing gummy jelly

Shin-ichi Kato, Katsuyuki Yamanaka, Futoshi Fusejima, Tomohiro Kumagai

Gc Corporation, R&D Department, Tokyo, Japan

Background and aim: As a masticatory ability test method that can be easily and effectively evaluated, there was a method of chewing a glucose containing gummy jelly for a certain period of time and measuring the amount of eluted glucose. Recently, it had been developed the masticatory function test kit, that it was consisted of glucose containing gummy jelly, and a dedicated glucose concentration measuring device.
The purpose of this study was to evaluate the effectiveness of masticatory ability test using glucose containing gummy jelly from in vitro glucose elution test.

Methods: Glucose containing gummy jelly (product name "Glucolumn", GC) were cut into 8, 32 and 64 pieces, and each divided gummy pieces were immersed in 10 mL of distilled water and stirred with a stirrer for 20, 40 and 60 seconds. The amount of eluted glucose was measured by the dedicated glucose concentration measuring device (product name "Gluco Sensor GS-II", GC). As a control, the amount of glucose from undivided gummy jelly also measured in the same manner (number of samples N=5). The results were analyzed by Tukey method.

Results: The amount of eluted glucose from glucose containing gummy jelly became higher as the number of divided pieces were more increased, that was as the surface area was larger, and the stirring time was longer. In the comparison of the divided amount after 60 seconds, the results were non-divided 30±3, 8 divided 81±3, 32 divided 143±8, and 64 divided 153±4 mg/dL.

Conclusions: It was shown that the amount of glucose dissolved from glucose containing gummy jelly increased as the amount of the number of divided pieces was more increased and the stirring time was longer. Therefore, it was suggested that the higher the masticatory ability and the better the gummy jelly chewing, the higher the measured glucose concentration.

PP39

Validation of Croatian version of the Oral Health Impact Profile for Edentulous subjects

Jolanda Topić[1], Asja Čelebić[2], Ines Kovačić[3], Aleksandra Jelenković Popovac[4], Sanja Peršić Kiršić[5]

[1]*Private Dental Office, Makarska, Croatia*
[2]*Department of Removable Prosthodontics, School of Dental Medicine, University of Zagreb and Clinical Hospital Centre, Zagreb, Croatia*
[3]*Department of Removable Prosthodontics, School of Dental Medicine, University of Zagreb, Zagreb, Croatia*
[4]*Department of Prosthodontics, School of Dentistry, University of Beograd, Beograd, Serbia*
[5]*Department of Removable Prosthodontics, School of Dental Medicine, University of Zagreb, Zagreb, Croatia*

Background and Aim: Instrument for assessment of oral health related quality of life (OHRQoL) for edentulous subjects in Croatian cultural environment does not exist. The aim was to validate psychometric properties of the Croatian version of the Oral Health Impact Profile for edentulous population (OHIP-EDENT-CRO).

Methods: The translation and cross-cultural adaptation were done according to accepted international standards. A total of 95 removable denture wearers were recruited. The reliability was evaluated by calculating the Cronbach's alpha coefficient. The test–retest was made in 30 participants. The concurrent validity was determined by calculating the Spearman's rank coefficient between the OHIP-EDENT summary scores and a question related to removable denture satisfaction. Construct validity was determined by exploratory factor analysis (EFA). Responsiveness was determined by comparison of the OHIP-EDENT summary scores before and after mini-dental implant (MDI) placement in the mandible for overdenture support (30 patients received 4 MDIs and 25 received 3 MDIs).

Results: The Cronbach's alpha coefficient was 9.22. The intraclass correlation coefficient was 0.98. The Spearman's correlation coefficient was -0.71 ($p < 0.001$) which confirmed concurrent validity. Construct validity was tested by the EFA which extracted four factors, accounting for 66.59 % of the variance. Responsiveness was confirmed significant OHIP-EDENT summary score reduction and a high standardized effect size after MDI insertion.

Conclusions: The results prove that the OHIP-EDENT-CRO has good psychometric properties for assessment of OHRQoL in edentulous population.

PP40

An assessment of Foundation Dentists confidence and exposure in managing patients with dementia?

Bethan McConville

Foundation Dentist, London, United Kingdom

Background: Dementia is associated with a range of neurological conditions all of which are progressive. The most common types of dementia are Alzheimer's and vascular dementia. It is a progressive condition and the patient's ability to communicate and quality of life decreases over time. The FGDP (2018) published standards for dementia care provision which contribute to ensuring the highest quality of care for patients; therefore, providing the skills for dentists to manage these patients. However, there are many challenges with treating patients with dementia, especially for young dentists that don't have years of experience. Currently, there are few studies that investigate Foundation Dentists confidence and exposure when treating these patients.

Aim: The aim is to compare Foundation Dentists confidence and exposure in managing patients with dementia and the issue surrounding capacity and consent with the FGDP standards.

Objectives:
- to increase Foundation Dentists understanding of dementia and the FGDP standards published on managing patients with dementia.
- To increase confidence in dental practitioners when providing oral health care and long-term treatment planning for patients with dementia; relating to the issues around consent and capacity.

Standards; The FGDP (2018) standards;
1. Treatment planning that recognises the possible impact that dementia may have on the individual
2. Consent and capacity issues.

Method: A questionnaire was created for 150 Foundation Dentists in the UK looking at the confidence and exposure of treating patients with dementia and the issue with capacity and consent. Data was collated and analysed in a table. Statistics were determined using a uniform excel spreadsheet.

Results: The results are pending from the questionnaire but the results so far show that the majority of Foundation Dentists don't feel confident in treating patients with dementia.

PP41

Self-perceived oral health status and oral health-related quality of life in a population with moderate to severe visual impairment in Malta

Maria Luisa Gainza-Cirauqui[1], Veronica Montebello[2], Natasha Muscat[3], Serine Stanyer[3], Arthur Rodriguez Gonzalez Cortes[1], Nikolai Attard[2]

[1]Department of Dental Surgery, University of Malta, Msida, Malta
[2]Department of Oral Rehabilitation and Community Care, University of Malta, Msida, Malta, [3]Research Associate, University of Malta, Msida, Malta

Background and aim: Data suggest that globally there are over 200 million people living with moderate-to-severe visual impairment (MSVI) and blindness. Most of the population with low vision is aged 50 years and over and represent the 65% of people with MSVI and the 82% of blind people. Although there is a high prevalence of visual impairment, to our knowledge, there are few studies on the impact of visual impairment and blindness in the oral health status and the oral health-related quality of life. These studies show that, with age, poor oral health in a population with visual impairment is significantly more deteriorated than in a population without visual impairment. Furthermore, people living with visual impairment and blindness resort to dental treatment less often than their peers without visual impairment.
The aim of this study is to determine the impact of visual impairment in the oral health-related quality of life and in the self-perceived oral health.

Methods: A total of 32 adult participants with MSVI were included in this study. Data collection included an intraoral examination and a questionnaire on sociodemographic data of the patient, relevant medical history and oral health perception and habits. Oral health-related quality of life (OHQoL) was assessed using OHIP-14 questionnaire.

Results: The mean age of the participants was 67.03 years (SD 14.00, age range 37-89 years). The study included 17 women (53.1%) and 15 men (46.9%). The OHIP-14 showed a median score of 67.5 (range 28-70) showing, in general, a poor OHQoL.
When asked about their perception of oral health status, 50% and 40.6% (n=13) considered having unhealthy teeth and gums respectively. We observed an association between a poor self-perceived oral health and a poor OHQoL (Kruskal Wallis, p=0.007) irrespective of the number of functional units (median 9, range 0-14; p>0.05).

Conclusion: We present the initial data of the study in the oral health status of the visually impaired population in Malta. The data obtained in this study suggest that a poor self-perceived oral health is associated with a poor quality of life.

PP42

Relationship between gene profiles and histopathology/ immunopathology in high-prevalence BRONJ-like lesions in mice

Shinichiro Kuroshima[1], Muneteru Sasaki[1], Hiroki Hayano[1], Rhohei Kozutsumi[2], Maaya Inoue[2], Takashi Sawase[1]

[1]*Department of Applied Prosthodontics, Institute of Biomedical Sciences, Nagasaki University, Nagasaki, Japan*
[2]*Department of Applied Prosthodontics, Graduate School of Biomedical Sciences, Nagaski University, Nagasaki, Japan*

Background & Aim: The exact mechanisms of bisphosphonate-related osteonecrosis of the jaw (BRONJ), which worsens oral health-related quality of life, remains unknown. The aim of this study was to investigate the relationship between gene profiles and histopathology/immunopathology in high-prevalence BRONJ-like lesions in mice.

Methods: Both maxillary first molars were extracted in cyclophosphamide (anti-cancer drug)/zoledronate (CY/ZA)-treated 8-week-old, female C57B/6J mice to create a high-prevalence BRONJ-like lesions. Tooth extraction was performed at 3 weeks after drug administration. Gene profiles of soft tissue in the tooth extraction sockets were investigate with microarray and quantitative polymerase chain reaction by euthanizing them at 24 and 72 hours after tooth extraction. Histopathology and immunopathology were also examined at 2 and 4 weeks after tooth extraction. Saline was used as a control (VC).

Results: Impaired wound healing with open wounds, exposed bone, increases in necrotic bone and empty lacunae, and decreases in living bone and osteocytes at 4 weeks after tooth extraction in CY/ZA was diagnosed as BRONJ-like lesions in this study. Decreases in blood and lymphatic vessels, and macrophages were detected in the connective tissue of tooth extraction sockets in CY/ZA at 2 weeks after extraction. Moreover, relative expression levels of inflammatory cytokines were significantly increased in CY/ZA compared with VC, whereas relative expression levels of anti-inflammatory cytokines, stem cell markers, and vascular endothelial cell growth factor (VEGF)A, B, and C were significantly suppressed in CY/ZA compared with VC. From microarray, these genes in CY/ZA dramatically changed at 24 hours after tooth extraction compared with VC.

Conclusions: Our findings suggest that dramatic alteration of gene profiles by chemotherapy/bisphosphonate combination therapy with tooth extraction is linked with histopathology/immunopathology in the early stages of BRONJ-like lesions.

PP43

Modelling biological ageing and disease using microgravity adaptation effects

Melania Toska, Athina Bakopoulou, Vassiliki Anastassiadou, Petros Koidis

Department of Prosthodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

Background and aim: Current studies highlight a close resemblance to the morphological changes observed in biological ageing with adaptation effects of microgravity. Consequently, microgravity conditions potentially contribute to highlighting biological indicators and countermeasures that occur during ageing. Such insight provides the links and pathways of alterations and adaptation of the human body to preserve not only mobility but also the performance of daily tasks and consequently prevent disturbances and functional impairments prevailing oral and systemic health status.
This review aimed to compile current evidence that microgravity acts as a model of ageing and identify oral and systemic descriptors that compromise body architecture and biomechanical properties of aged tissues and organs affecting health expectancy.

Materials: Two independent examiners conducted a comprehensive literature search through electronic databases using suitable keywords.Via a predefined review process, they identified eligible, published in English articles. Thirteen out of the 178 identified records were included for quality and systematic assessment.

Results: Ageing and microgravity effects shared environmental stressors, which lead to critical implications in injury and disease. These stressors induced shifts in oral and perioral microbiota, increasing the risk for opportunistic infections and posed a threat to deterioration of oral and consequently systemic health. As oral signs occurred early and remained relatively stable contributed to understanding mechanisms, such as immune response to senescence and dysfunction, musculoskeletal deconditioning, kidney and cardiac dysfunction, lung and gut inflammation and actions preventing further implications in health status.
Moreover, recorded fluid homeostasis alterations, orthostatic intolerance, cardiovascular and neuro-sensory deconditioning were (a) considered negative metabolic and morphologic consequences compounded by pre-existing sarcopenia, and (b) mitigated through exercise regimes and diet to prevent further sarcopenic and osteoporotic disturbances. Skeletal muscle and bone loss linked tooth cracks and periodontal disease to non-communicable diseases, where the loss of control and potential aggravation implicated further the state of nutrition, mobility, quality of life and overall health.

Conclusions: Modelling biological ageing and disease using microgravity effects throughout analogies and discrepancies are promising delivers of useful biomarkers and solutions for promoting health expectancy.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP44

Orthodontic management of seniors. Motives, satisfaction levels and effective treatment approach

Frantzeska Karkazi[1], Maria Antoniadou[2]

[1]Department of Orthodontics, Marmara University, Istanbul, Turkey
[2]Department of Operative Dentistry, Dental school of Athens, National and Kapodistrian University of Athens, Athens, Greece

Background & Aim: The objective of this study is to review the senior patients' reasons and experience with orthodontic treatment, as well as, to develop a decision-making process pattern for this age group to undergo orthodontic interventions.

Methods: A literature search was performed using Google Scholar, PubMed and Scopus search engines covering the period January 1930 until June 2020 corresponding to articles investigating the initiatives, satisfaction levels and psychological profiles of seniors under orthodontic treatment and the effective treatment approach to undergo orthodontic interventions.

Results: The number of elderly orthodontic patients has increased over the last decades. Seniors appear more positive toward orthodontic treatment with a higher level of satisfaction than younger patients. Although the occlusal condition or masticatory function may still not be satisfying among this population possibly due to the predisposing condition, orthodontic treatment per se has a positive impact. A directed and effective treatment approach is necessary to meet the expectations of these patients.

Conclusions: Orthodontic treatment in the elderly may be selected as part of interdisciplinary treatment for esthetic restoration, rehabilitation after tooth loss, periodontal breakdown, or to prevent further deterioration caused by oral diseases. However, it is important to explain to these patients the limitations that their age imposes on the orthodontic treatment to solve their particular issue. Overall, senior patients are more satisfied with their orthodontic treatment than younger patients.

PP45

Dental home visit in Taiwan

Kuan-Yu Chu

Taipei City Hospital, Renai Branch, Taipei City, Taiwan

Objectives: Dentist home visit is a special mode of dental service, which aims to provide dental treatment for patients with limited mobility or those who are unable to go out for dental care. As the people with multiple disability increases, so does demand for more dental home visit in Taiwan. Therefore, organizing dentists to provide dental home visit is necessary to improve the quality of life of individuals with severe disabilities in using dental health care services. The objective of this report is to address some important questions and set forth explicitly some factors for looking at the policy of dental home visit.

Methods: This report centers on empirical study which is primarily concerned with dental home visit in Taiwan and is based on literature reviews.

Results: Dental home visit in Taiwan has a number of challenges. One of the problems is the inconvenience of the hardware. Another problem is the cost of dental home visit, which is not consistent and is one of the reasons why dentists are unwilling to participate. Moreover, the application process is complicated and time-consuming.

Conclusions: The need of dental home visit service in Taiwan have not been met. Preventive actions may be the solution, including regular oral examinations of the elderly to restore chewing function, prevention of hypertension in order to reduce the incidence of stroke, and pharmaceutical and non-pharmaceutical therapy to delay dementia in the elderly.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF
ATHENS

PP46

Accessibility to free prosthodontics services scheme in rural Thai older people

Thidaporn Saelim[1], Suwat Tanta[2], Patcharawan Srisilapanan[1]

[1]Faculty of Dentistry/Nation University, Chaing Mai, Thailand
[2]Department of Family and Community Dentistry, Faculty of Dentistry, Chiang Mai University, Chaing Mai, Thailand

Background: The Thai government launched the Royal Denture Project to provide free complete or removable partial denture to Thai older people who needed.

Objective: To evaluate the relationship between the number of remaining teeth and access to free prosthodontic services scheme in rural Thai older people.

Materials and Methods: This cross-sectional study was conducted from July 2018 to June 2019. The participants were 429 older people aged 60 years and older living in a rural area, in the northern part of Thailand (Tha Pladuk Sub-district, Mae Tha District, Lamphun Province, Thailand). The participants were consented to participate in the study. The face to face interview was conducted by well-trained health care providers. After interview, the questionnaire included general information, socio-demographic variables and access to free prosthodontic services scheme in a government hospital were assessed. Clinical examination was conducted by two calibrated dentists based on the WHO Oral Health Surveys Basic Methods 2013. Clinical variables included number of remaining permanent teeth and denture status. Descriptive Statistics and Chi-Square tests were used to analyze.

Results: The results showed that 59.7% of participants were females, 55.9% aged 60–69 years, average ages 70.31±7.92 years. 99.8% had less than 6 years of study, 54.8% had monthly income less than 2,500 Thai Baht. 86.0% of the older people lost at least one permanent tooth, 24.0% had less than 12 remaining teeth, and 38.9% had less than 20 remaining teeth. 8.8% were edentate. Among the edentulous patients, 60.5% had not received the free prosthodontic services scheme from a government hospital. Only 15 people had complete dentures done. Moreover, only 19.8% of older people having less than 20 remaining teeth and 21.4% of older people having less than 12 remaining teeth had access to free prosthodontic services scheme. There were significant differences between the number of remaining permanent teeth in rural Thai elder people and accessibility to prosthodontic services in a government hospital ($p < 0.05$).

Conclusion: Majority of older people in a rural area who needed dentures had no access to free prosthodontic service scheme.

PP47

Improvement of the quality of life in implant overdenture patients

Natalija Prica Oreski[2], Sanja Persic Kirsic[1], Nikola Petricevic[1]

[1]School of Dentistry, Zagreb, Croatia
[2]Poliklinika Zagreb, Zagreb, Croatia

Aim of Purpose: To evaluate the oral health related quality of life (OHRQoL) after the implant therapy and prosthodontic rehabilitation with overdentures on 2 implants (ODI).

Materials and methods: Thirteen patients (mean age = 64.50) fulfilled OHIP49-CRO questionnaire before receiving implants and 1-year after wearing overdenture. Another group of 130 healthy subjects (CHS) (age mean = 22.31) was randomly collected as a control group.

Results: There were no significant differences for the OHIP scores between males and females and different age groups (<40, 40–59, >59), and no significant difference of the scores dependent on the presence of the natural teeth or FPD in the antagonistic jaw ($P > 0.05$). After 1 year, FPD follow-up scores were significantly lower in comparison to baseline scores, but still remained significantly higher than the CHS scores ($P < 0.05$). The highest effect size was in the group of patients that had the complete denture and received 2 implants, with result of 2.35 in the functional limitation group of OHIP questions.

Conclusion: The implant-supported overdenture therapy significantly increased the OHRQoL, especially in the group of denture wearers, but didn't reach the CHS group. Sex and age had no influence on the OHRQoL.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

PP48

Oral function of implant-assisted removable partial denture with magnetic attachments using short implants

Masataka Watanabe[1], Manabu Kanazawa[1], Anna Miyayasu[1], Mari Asami[1], Ryo Shimada[1], Masatoshi Negoro[1], Yoko Uehara[1], Daisuke Sato[2], Yuriko Kusumoto[3], Yuka Abe[3], Kazuyoshi Baba[3], Shunsuke Minakuchi[1]

[1]*Gerodontology and Oral Rehabilitation, Tokyo Medical and Dental University, Bunkyo-ku, Japan*
[2]*Department of Implant Dentistry, Showa University, Ota-ku, Japan,* [3]*Department of Prosthodontics, Showa University, Ota-ku, Japan*

Background and aim: In recent years, implant-assisted removable partial denture (IARPD) has been widely used in clinic. Although it has been reported that IARPD could significantly improve masticatory function, there is no research regarding masticatory function of IARPD with magnetic attachments using short implants. Therefore, the aim of this study was to evaluate the oral function of IARPD with magnetic attachments using short implants.

Methods: Thirty participants who had mandibular Kennedy classification I or II with three or more distal extension missing teeth were recruited. The period of using conventional removable partial denture before implant placement was defined as stage 0. After treatment planning, the implant with 6 mm in length and 4.1 mm in diameter (Straumann SLActive Implant Standard Plus RN) was placed in the most distal edentulous space with adequate buccolingual bone width. The placed implants were covered by healing caps and the mucosal surface of the denture corresponding to the healing caps was relieved. At the end of the unloading period, the denture was relined to contact with the healing caps (stage1). Four weeks later, one or two magnetic attachments (Magfit) were attached to IARPD (stage2). Evaluation for outcomes was performed at stage 0, stage1 and stage 2. The outcomes were mixing ability by Xylitol Masticatory Performance Evaluating Gum, comminuting ability by Test Gummy Jelly for Evaluating Masticatory Performance, maximum bite force and occlusal contact area by Dental Prescale. The Wilcoxon signed-rank sum test and Bonferroni's correction were used to evaluate differences between stages for each outcome. All statistical analyses were performed using statistical software SPSS ver.22 at a significance level at $p=0.05$.

Results: The data of 27 participants who completed evaluation at stage 2 were analyzed. There were significant differences in comminuting ability between stage 0 and stage 2, and between stage 1 and stage 2. Regarding the maximum bite force and occlusal contact area, there was significant difference between stage1 and stage2. There was no significant difference in mixing ability between 3 stages.

Conclusion: Within limitation of this study, this result suggested that IARPD with magnetic attachments using short implants could improve oral function.

PP49

Dental plaque control strategies for the elderly population: A scoping review

Ana Lucia Ferreira de Mello, Mariane da Luz Raulino, María del Rosario Ruiz Nuñez, Renata Goulart Castro

Federal University of Santa Catarina, Florianópolis, Brazil

Objective: Scoping review of the scientific literature to identify dental plaque control strategies that improve the oral health indices in elderly people.

Method: It followed the Joanna Briggs Institute protocol. The review considered only articles, in six databases. The initial search resulted in 2635 articles; 24 were selected for further analysis.

Results: The results extracted from the included articles were divided into analytical categories: Exclusively mechanical methods (5), Exclusively chemical methods (10), Combined mechanical and chemical methods (1), and Educational interventions (8). The studies reported different types of intervention: sugarless chewing gum, chlorhexidine in different preparations (spray, varnish, and mouthwash) and concentrations (0.12%, and 0.2%), mouthwash based on essential oils and lozenges containing lactoferrin and lactoperoxidase. Also, conventional or professional brushing, toothbrush type and the use of dentifrice containing stannous or sodium fluoride. Educational interventions included oral hygiene guidance, transmission of verbal information and demonstrations of dental and denture cleaning procedures, and lifestyle changes. Many of the studies reported strategies that improved dental plaque indices, whether mechanical, chemical or educational. Plaque control methods when used alone and without timely reinforcement do not provide satisfactory results as those used in combination or with reinforcement, especially those with an educational based intervention.

Conclusion: Literature reports that mechanical, chemical and educational based strategies have some efficacy in dental plaque control for the elderly population. However, when used them alone and without reinforcement, the results are less satisfactory and not lasting.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP50

Evaluation of subjective dry mouth after using dry mouth relief toothpaste in older people

Patcharawan Srisilapanan[1], Suwat Tanya[2]

[1]Faculty of Dentistry, Nation University, Chiang Mai, Thailand
[2]Faculty of Dentistry, Chiang Mai University, Chiang Mai, Thailand

Objective: To evaluate the change in subjective perception of dry mouth after using dry mouth relief toothpaste at five time periods.

Materials and Methods: This was a single-blind, five 1-day periods, experimental study. Subjects were screened for their subjective complaints on dry mouth using a Summated Xerostomia Inventory-Dutch Version (SXI-D) comprised of 5 questions. Those who had SXI-D score equal or more than 8 were invited to participate. 36 subjects met the inclusion criteria and gave their consents. All subjects were asked to use provided fluoride toothpaste as a washout period for 7 days. On the experiment day, subjects were assessed subjective dry mouth using 10-cm visual analog scale (VAS) as a baseline. Subjects were provided the same food for lunch. After meal, subjects brushed two minutes with dry mouth relief toothpaste (Innoage Rebalance) contained no sodium lauryl sulfate (SLS), no alcohol, no diethanolamine (DEA) foaming agent and non-irritating flavor. Subjects were asked to mark a VAS score at five time periods: immediately after brush, at 1, 2, 3, and 4 hours. If needed, subjects could sip no more than 50 ml of water at a time. ANOVA and t-test were used to test the differences in subjective symptom of dry mouth score between five time periods compared to baseline.

Results: Mean age of 36 subjects was 69.4 ± 7.5 years. At baseline, the mean score for subjective symptom of dry mouth was 6.24 ± 1.57. After brushed with dry mouth relief toothpaste immediately, the mean score for subjective dry mouth decreased to 1.47 ± 1.32. After that, the mean subjective dry mouth score slightly increased to 1.78 ± 1.53, 2.42 ± 1.95, 2.75 ± 2.21, and 2.93 ± 2.24 at 1,2,3 and 4 hours respectively. However, at 4 hours the mean score for subjective dry mouth was significantly lower compared to baseline ($p < 0.001$, t test) The mean mouth dryness score at a five-time periods shown significant improvement when compared to baseline ($p < 0.001$).

Conclusion: Dry mouth relief toothpaste with no SLS, no alcohol, had no irritating flavor and without DEA was effective for relieving symptoms of dry mouth in older people. Therefore, it could improve a quality of life regarding eating and swallowing.

PP51

Inhalation sedation in dentistry: Anesthesiologists vs dentists

Luis Prió Torres, Belisa Olmo, José Manuel Ribera, Víctor Gil, David Martín

Clinical Internship in Geriatric Dentistry, Special Patients and Medically-Compromised Patients. Universitat Internacional De Catalunya. , Sant Cugat del Vallès, Spain

Background and Aim: Inhalation sedation with nitrous oxide is a technique used with patients that present phobia and anxiety. Some professional collectives, such as anesthesiologists, have posed a debate about the use of said drug by dentists in their ongoing practice. Our aim is to find out what anesthesiologists think about the practice of inhalation sedation by dentists in the dental clinic and find out what experience anesthesiologists have with sedation on dental patients.

Methods: First, a literature review is conducted using PubMed as the database and using the MeSH terms: "conscious sedation", "survey" and "anesthesiologist" between the years 2008 and 2020. Secondly, a 10-item survey is carried out based of the articles found that refer to the problem that anesthesiologists have with sedation done by a dentist in the dental clinic. This survey is sent to anesthesiologists of Catalonia and Balearic Islands.

Results: A total of 100 properly completed surveys are obtained. 45% of professionals had completed specialty less than 10 years ago,75% work in the public sector and 46% didn't have any experience with general anesthesia of dental patients. 89% believe that dentists would not be able to handle an emergency situation during nitrous oxide sedation and 93% disagree about the minimum hours a dentist's training course requires to perform this sedation. Only 27% are in favor of choosing general anesthesia as the technique of choice with a patient with dental phobia.

Conclusions: Most anesthesiologists (69%) do not consider appropriate for dentists to administer sedation with nitrous oxide sedation. 70% of anesthesiologists have no experience with sedation of the dental patient.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

CITY OF ATHENS

PP52

Can extramural training in nursing homes affect the dental students' perceptions towards the older patients?

Sotiris Gkatzaros, Kalliopi Konstantopoulou, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: The role of educational methodology and content in improving the dental students' attitudes towards the older persons has not been extensively investigated. The aim of this study was to investigate whether extramural training in nursing homes may affect the dental students' perceptions towards the older patients using the recently validated in Greek Ageism Scale for Dental Students (ASDS_Gr).

Methods: The ASDS_Gr scale consisting of 15 items, with six responding options per item, was electronically and anonymously completed by senior dental students attending the 10th semester of studies at the NKUA School of Dentistry. All students had attended a compulsory gerodontology course at the 8th semester and had clinical experience in treating older patients at the School's clinics. During their studies they had the option to voluntary participate in nursing home training including interviews, clinical examination and dental treatment planning for the residents. Demographic characteristics, history of living with older people and participation in extramural training in nursing homes were recorded. Data were analysed using descriptive statistics and bivariate analyses.

Results: Fifty-two senior students (13 men, 39 women) with a mean age of 23.4 ± 1.4 years participated in the electronic survey. A total of 88.5% originated from an urban area, 86.5% had older persons in their family, while 46.2% currently lived or had lived with older people. Half of the students had participated in the nursing homes training. Statistical analysis did not reveal any significant differences in the total ageism score between the students who participated in the nursing homes training (n=26, 49.5 ± 5.6) and those who did not (n=26, 51.2 ± 7.0) (Student's T-test, P=0.315). Moreover, no statistically significant associations were recorded in relation to sex, age, family residence, having older persons in the family and history of living with older adults (P>0.05).

Conclusions: Under the limitations of the present investigation extramural training in nursing homes did not significantly affect the dental students' perceptions towards older patients. More studies are necessary to identify the educational interventions that may have a positive impact on the ageist attitudes.

PP53

Dental and prosthodontic status of nursing home residents in Athens: A pilot study

Aspasia Pachiou, Kalliopi Konstantopoulou, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: Oral health in nursing home residents is poor and access to dental care is usually limited. The purpose of this study was to record the dental and prosthodontic status of older nursing home residents in Athens.

Methods: The residents of a nursing home in Athens were interviewed and clinically examined in their rooms using portable dental equipment. Their demographic characteristics were recorded, as well as their smoking habits and the satisfaction with their own oral health. The number of natural teeth and use of removable prostheses were investigated. The quality of removable prostheses in terms of retention, stability, occlusion, vertical dimension of occlusion and level of denture hygiene were also evaluated.

Results: A total of 29 residents (10 males, 19 females) were examined. Their mean age was 85.3 ± 8.2 years. They had been living in the nursing home for 3.9±4.1 years (1 month to 8 years) and 20.7% had received more than 12 years of education. A total of 20.7% were active smokers and 37.9% were satisfied with their oral health. Regarding the number of natural teeth, 13.8% had more than 20 teeth, 44.8% had 1-20 teeth, whereas 34,5% were edentulous. A total of 27.6% were using upper and/or lower complete dentures, 10.3% upper partial dentures and 6.9% lower partial dentures. Among edentulous residents, 70% were using complete dentures. Lack of retention was recorded in 57.1% of the dentures, lack of stability in 19%, decreased occlusal vertical dimension in 36.4%, whereas lack of neuromuscular control in 9.1%. Oral plaque in more than one third of the denture surface was recorded in 36.4% of the upper and 20% of the lower dentures. The number of natural teeth was not statistically significantly associated with sex, age, education, years living in the nursing home, smoking habits or satisfaction with oral health (P>0.05).

Conclusions: This study identified increased levels of partial and complete edentulousness and poor prosthodontic status among nursing home residents. Future studies are needed to comprehensively evaluate their oral status and treatment needs.

PP54

Knowledge of healthcare professionals of oral health in older adults

Eleni Ypsilanti, Kalliopi Konstantopoulou, Anastassia Kossioni

Department of Prosthodontics, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Background and aim: The information about oral health literacy among non-dental healthcare providers is sparse. The purpose of this study was to explore physicians' and other healthcare professionals' knowledge of the oral health and care of older adults.

Methods: An anonymous written questionnaire with 15 close-ended questions was developed and distributed to a group of healthcare providers participating in a postgraduate program in Geriatrics. The score ranged between 0 and 15 points. The questionnaire included demographic characteristics, oral health information sources and 15 knowledge questions about oral health and care in older adults. Each correct answer scored 1 point and each wrong answer scored 0; the total knowledge score could range between 0 and 15 points.

Results: The questionnaire was completed by 26 participants. The response rate was 93%. A total of 65.4% were physicians, 92% were professionally involved in geriatric care and 34.5% provided oral promotion to older patients on a regular basis. The major source of oral health knowledge was their dentist (80.8%), followed by their undergraduate studies (46.2%) and the internet (38.5%). The total score of oral health knowledge was 10.69±1.89. Bivariate analyses showed that knowledge about xerostomia associated with depression, reasons for removable denture replacement and association of periodontitis with diabetes mellitus were more frequently answered correctly by physicians (chi-square test, P=0.004, P=0.005 and P=0.004 respectively) compared to other healthcare professionals. In addition, those participants who were professionally involved in geriatric care were more likely to answer correctly the question about the association of tooth loss with malnutrition in institutionalised older adults (chi-square test, P<0.001). Regarding the total knowledge score, the physicians scored higher compared to other healthcare professionals (Mann-Whitney U test, P=0.005).

Conclusions: The results indicated that the level of knowledge of healthcare professionals on oral health in older adults was acceptable, but more training was required during formal undergraduate and postgraduate education.

PP55

Effects of mechanical loads on osseous tissue around implant in rat maxillae

Yusuke Uto, Shinichiro Kuroshima, Yusuke Uchida, Masayoshi Suzue, Takashi Sawase

Nagasaki University, Nagasaki, Japan

Background and aim: Dental implant treatment is one of the useful solutions to replacing missing teeth. Bone resorption around implants sometimes progresses under peri-implantitis, which negatively affect treatment success of patients. However, appropriate maintenance of bone tissue around implants for a long time under mechanical stresses such as occlusal and parafunctional loads remains unclear. Thus, the aim of this study was to investigate relationship between bone tissue around implants and mechanical loads mimicking occlusal loads.

Methods: 9-week-old female, wistar rats were used. Both maxillary first molars were extracted. Grade IV titanium threaded-implants were placed in the extraction sites at 4 weeks post-implant placement. At 3 weeks after implant placement, mechanical loads were repetitively applied on the one side of implants for 2 or 5 weeks (twice a week/ 3Hz/1800cycles). The remaining side of implants was not applied any loads as a control (n = 5 per each group). Micro computed tomography was used to analyze an architecture of osseous tissue around implants. Histomorphometric and immunohistochemical analyses were performed for quantitative analyses of bone cells and collagen fibrils.

Results: Mechanical loads for 5 weeks increased bone mineral density around implants without alteration of bone volume. Mechanical loads for 2 weeks significantly increased the number of tartrate-resistant acid phosphatase-positive osteoclasts and Runt-related transcription factor 2-positive osteoblasts when compared to those in control. Mechanical loads for 5 weeks increased the number of osteoblasts and osteocytes without changing osteoclast numbers. Moreover, mechanical loads for 5 weeks increased type I and III collagen, whereas mechanical loads for 2 weeks did not affect the production of both collagen fibrils. The load effect for 5 weeks on collagen was significantly larger than that for 2 weeks.

Conclusion: Mechanical loads had a positive effect on bone cells, regardless of loading durations, whereas bone quantity was affected by mechanical loads for 5 weeks. Mechanical loads through implants may modify bone structure around implants by affecting the activity of osteoclasts, osteoblasts and osteocytes. Alteration of type I and III collagen production by mechanical loads may also contribute to the adaptation of bone quality around implants.

Local Organiser: Discipline of Gerodontology,
Department of Prosthodontics, School of Dentistry
National and Kapodistrian University of Athens, Greece

Under the auspices of

PP56

Metastatic lung cancer in oral cavity

Panagiotis-Emmanouil Kavvalos, Michail Zoumpoulakis, Maria Rovithi, Marios Spanakis, Nikolaos Tzanakis

General Hospital of Agios Nikolaos, Agios Nikolaos, Greece

Background and aim: Lung cancer is one of the leading causes of cancer mortality worldwide. Survival based strongly on the staging and biology of tumor. Smoking is the main risk factor. Jaw bone and oral cavity metastasis is seldom site of primary lung cancer progression. We herein report an unusual occurrence of non-small cell lung cancer metastasis to the oral cavity and jaw bone. The oral cavity lesion was the first manifestation of the disease.

Methods and Results: An 86-year-old man with heavy smoking history presented in the Dental clinic of the General Hospital of Agios Nikolaos with a painful swelling in the left upper back teeth region of the jaw in the last 2 months. The patient was referred by his dentist with the diagnosis of a periapical abscess caused by residual teeth roots of #24#25. Physical examination revealed a marked swelling on the left upper buccal gingival. Dental periapical x-ray revealed no residual roots but findings of radiolucent area within the lesion. A biopsy obtained under local anesthesia without complications and was sent histology examination. The specimen was consistent with lung adenocarcinoma. Treatment for the patient was only supportive as his general condition was burdened and his physical performance very poor.

Most of the published literature describes the lung cancer as the most common malignancy metastasizing to the oral cavity, followed by breast, kidney and liver cancers. Metastasis to the oral cavity, although can occur at any age, is most common in elderly individuals of fifth and sixth decade. Only in a few cases, the oral/jaw bones lesions are the first clinical manifestation of primary tumor spread. Our patient was older, and the oral metastasis was the first manifestation of the disease.

Conclusion: Metastatic tumors to the oral region are infrequent and they may be localised in the oral soft tissues or jaw bones. Mostly they originate from the lung. Here we presented a very unusual incidence of a metastatic adenocarcinoma of lung in the oral cavity as first manifestation. Dentist must aware and suspect such a diagnosis as it mimics odontogenic infections or other benign conditions especially in elderly heavy smoking individuals.

PP57

Effect of different thickness of soft tissues of the posterior denture bearing area on peri-implant stress and strains in four mini-implant retained mandibular overdenture

Roko Bjelica[1], Asja Celebic[1], Irina Filipovic-Zore[1], Ognjen Milat[2], Sanja Persic[1], Ines Kovacic[1]

[1]*School of Dental Medicine, University of Zagreb, Zagreb, Croatia*
[2]*Institute of Physics, Zagreb, Croatia*

Background and aim: Soft tissues overlying edentulous residual ridges are supposed to be the primary stress bearing area, affecting stability and denture movements under masticatory loads. Dental implants have been used to enhance removable denture retention and stability, especially in geriatric patients with thin residual ridges. The aim of this study was to evaluate influence of different thickness of mucosal tissues under different mandibular overdenture loadings on peri-implant stress and strains of four mini-implants (MDI).

Methods: One model of the mandible with severely atrophied and thin residual ridge was 3D printed, based on a CBCT scan, using a material with similar mechanical properties as the bone. Four MDIs (2.0x10 mm) were inserted interforaminaly at approximate sites of teeth 34, 32, 42, and 44, parallel to each other. Strain gauges (SG) were placed at the cervical MDI sites, one SG buccally and another orally, altogether eight SGs were placed. Measurements were made with artificial mucosa (soft silicone) of 1.5, 3 and 4 mm thickness overlying posterior denture bearing area. Forces of 50N, 100N and 150N were applied on the overdenture in the first molar region bilaterally and unilaterally. Each measurement was repeated three times.

Results: A combination of compressive and tensile deformations were recorded with SGs and the computer software (Kyowa DCS-100A Dynamic Data Acquisition Software) showing the maximum values for each of the applied forces. With an increase of the applied loads, an increase in deformations was recorded ($p < 0.001$). With increasing the artificial mucosa thickness from 1.5 to 3 mm peri-implant deformations increased, but with the 4 mm thick mucosa stresses further increased in some SG positions, but in another turned to negative ($p < 0.001$), and the overdenture sometimes lost retention and lifted up. Multivariate analysis revealed significant influence of tissue thickness, loads and their combination ($p<0.001$).

Conclusions: Within the limitations of this study it was concluded that thickness of the mucosa had significant effect on strain and stresses of cervical peri-implant bone. Increased mucosal thickness and loads may cause adverse effects to peri-implant bone of MDIs.

PRESENTERS & CHAIRPERSONS INDEX

A

B

C

D

E

F

ORGANISING SECRETARIAT

ERASMUS
KYVERNITIS GROUP | Conferences & Events

6, DROSINI STREET
166 73 VOULA, GREECE
T: +30 210 7414 700
WWW.ERASMUS.GR

SPONSORS

The Organising Committee of the 30th Annual Congress of the European College of Gerodontology gratefully acknowledges the following companies for their support to the success of the Congress.

bredent group

gsk

P&G

30th ANNUAL CONGRESS OF THE EUROPEAN COLLEGE OF GERODONTOLOGY

Healthy
Smiles
Longer
Lives

VIRTUAL
MEETING

www.ecg2020.eu

9-10
OCT.
2020