ZDRAVJE STAROSTNIKOV
HEALTH OF THE ELDERLY

**Zbornik
povzetkov z recenzijo
Book of Abstracts**

Edited by Ana Petelin

Univerza na Primorskem ▪ Fakulteta za vede o zdravju
Università del Litorale ▪ Facoltà di scienze della salute
University of Primorska ▪ Faculty of Health Sciences

Zdravje starostnikov
Health of the Elderly

5. znanstvena in strokovna konferenca
z mednarodno udeležbo
5th scientific and professional
international conference

Zbornik povzetkov z recenzijo
Book of Abstracts

Vsebina
Contents

Uvodne misli
Preface

Zdravje starostnikov

Fakulteta za vede o zdravju v letu 2021 organizira peto letno konferenco v ciklu letnih konferenc s področja zdravja različnih starostnih skupin, drugo na temo zdravja starostnikov. Letošnja konferenca je tako ponovno namenjena izmenjavi mnenj, izsledkov raziskav in izkušenj strokovnjakov s področja zdravja starejših odraslih. Na predhodni letni konferenci z enakim naslovom smo poudarjali, da se delež le-teh v svetovni populaciji strmo povečuje. Govorili smo o številnih raziskavah in pobudah na področju skrbi za zdravje starejših, ter za izboljšanje njihovega socialnega življenja. Danes lahko ugotovitve potrdimo in izpostavimo, da na področju zdravja starejših odraslih ostaja veliko neodgovorjenih vprašanj in priložnosti za raziskovanje. Starejšo populacijo je bržkone bolj kot katerokoli drugo skupino prizadela epidemija virusa SARS-CoV-2. Študije kažejo, da so med epidemijo med starejšimi odraslimi opazili višjo pojavnost anksioznosti, depresije in občutka samote. Verjamemo, da bomo skozi razpravo na konferenci poiskali skupne poti do reševanja aktualnih in prihajajočih izzivov, ki pestijo našo družbo na tem področju in prispevali tudi k boljšemu spopadanju starejših odraslih z epidemijo.

Osrednji namen konference je, da s predstavitvijo najnovejših dognanj povečamo splošno ozaveščenost glede pomena skrbi za zdravje starejših odraslih, ter spodbudimo nadaljnja razmišljanja in sodelovanja strokovnjakov na tem področju. V zborniku prispevkov je v prvi vrsti moč najti predstavitve različnih ukrepov, zasnovanih z namenom izboljšanja zdravja in življenja starejše populacije. Konferenca je tokrat razdeljena na pet vsebinskih sklopov, s čimer želimo spodbuditi povezovanje strokovnjakov sorodnih zanimanj in strokovnih ozadij. V prispevkih so zajete tematike s področja prehrane za zdravje starejših odraslih, pomena gibalne aktivnosti, tehnoloških rešitev, psihologije in sociologije, ter fizioterapije. Vemo, da lahko le z upoštevanjem vseh naštetih vidikov človeka obravnavamo celostno, zato upamo, da bo konferenca spodbudila tudi sodelovanje med različnimi strokami.

Namen konference je ponuditi celosten pregled na problematiko zdravja starostnikov, in spodbuditi raziskovalce, strokovnjake in študente k nadaljnjemu razmišljanju, delu, raziskovanju in ukrepanju. Znanstvena in strokovna literatura na temo zdravja starejših odraslih je že precej obsežna, a vendarle je nujno, da v naslednjih letih in desetletjih združimo moči in zasnujemo družbo tako, da zagotovimo zdravo staranje prav vsem.

prof. dr. Nejc Šarabon,
vodja programskega odbora konference

Health of the the Elderly

In 2021, the Faculty of Health Sciences is organizing its fifth annual conference, the second on the topic of health of the elderly. This year's conference is intended for exchanging opinions, research results and experiences of experts in the field of elderly health. At the previous annual conference with the same title, we emphasized that the proportion of the elderly in the world population is rapidly increasing. We talked about many research activities and public initiatives aiming to improve the health care for the elderly and their social life. Similar can be said today, and we have to point out that there are still many unanswered questions and opportunities for research in the field of health of the elderly. The elderly were probably more affected than any other group by the SARS-CoV-2 virus epidemic. Studies show that during the epidemic, a higher incidence of anxiety, depression, and feelings of loneliness was observed among the elderly. We believe that with the contributions at the conference, we will also contribute to a better coping of the elderly with the epidemic.

The main goal of the conference is to increase the general awareness of importance of caring for the health of the elderly, by presenting the latest relevant findings, and to encourage further reflection and cooperation of experts in this field. In this collection of papers, one can find first-hand presentations of various interventions, designed to improve the health and overall quality of lives of the elderly. This time, the conference is divided into five sections, with which we want to encourage the connection of experts of related interests and professional backgrounds. The articles cover topics in the field of nutrition for the health of older adults, the importance of physical activity, technological solutions, psychology and sociology, and physiotherapy. We know that we can only treat a person holistically if we consider all of these aspects. Thus, we hope that the conference will also encourage cooperation between the different professional groups.

We hope that the conference will offer a comprehensive overview of the issue of the health of the elderly, and encourage researchers, professionals and students to continue thinking, working, researching and taking action. The scientific and professional literature on the topic of the health of the elderly is already quite extensive, but it is nevertheless necessary to join forces in the coming years and decades to shape the society in such a way as to ensure healthy aging for everyone.

Prof. Nejc Šarabon, PhD.,
chair of the Conference Programme Committee

Vabljeni predavatelji
Invited lecturers

Sabina Passamonti je diplomirala s področja medicine in kirurgije ter dokto-rirala s področja biokemije. Raziskovalno se osredotoča na membranski transport bilirubina in flavonoidov. Je avtorica 76-ih znanstvenih člankov, od tega je pri polovici glavna avtorica, ter 4-ih poglavij v znanstvenih monogra-fijah. Bila je koordinatorica pri dveh večjih raziskovalnih projektih, v katerih je sodelovalo 21 institucionalnih partnerjev, financiranih s strani evropskih struk-turnih skladov (Trans2Care in Innov-H2O). Je partnerica projekta Agrotur II, ki nadaljuje z aktivnostmi predhodnega projekta Agrotur. Poučuje biokemijo na študijskih programih prve in druge stopnje. Je članica doktorske šole za nevro-znanosti in kognitivne znanosti. Ima bogate izkušnje pri številnih javnih social-nih, izobraževalnih in kulturnih dejavnostih s področja svojega delovanja. V letih 2012 in 2016 je bila odgovorna za habilitacije rednih profesorjev na nacional-ni ravni, od leta 1992 pa je zaposlena kot raziskovalka - znanstvena sodelavka.

Sabina Passamonti holds a degree in Medicine and Surgery with a Ph.D. in bi-ochemistry. She performs research studies on membrane transport of biliru-bin and flavonoids. She is the author of 76 scientific publications, half of them in the role of principal author, and 4 book chapters. She had coordinating roles in two major R & I network projects, involving 21 institutional partners and fi-nanced by European structural funds for around € 4 million (Trans2Care and Innov-H2O). She is partner of Agrotur II project, which continues the activi-ties of the previous project Agrotur. She teaches biochemistry in first and sec-ond level courses. She is a member of the doctoral college in Neurosciences and Cognitive Sciences. She has extensive experience in third mission activities. She is the holder of a national scientific qualification for the role of full professor in 2012 and 2016. She has been assistant researcher since 1992.
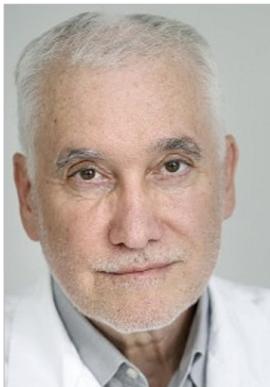
Prof. dr. Zvezdan Pirtošek, dr. med. je predstojnik katedre za nevrologijo na Ljubljanski medicinski fakulteti in dolgoletni predstojnik kliničnega oddelka za bolezni živčevja Univerzitetnega kliničnega centra Ljubljana ter soustanovitelj skupnega interdisciplinarnega študijskega programa druge stopnje kognitiva znanost - MEI:CogSci, ki poteka na Univerzi v Ljubljani, Dunaju, Budimpešti, Bratislavi in Zagrebu. Deluje tudi kot predsednik Slovenskega sveta za možgane in kot predstavnik Slovenije v upravnem odboru JPND (skupni program EU za raziskave in zdravljenje nevrodegenerativnih motenj). Njegovi glavni raziskovalni interesi vključujejo nevrodegenerativne bolezni, zlasti Parkinsonovo bolezen in Alzheimerjevo bolezen, kognitivno nevroznanost in starost kot obliko diskriminacije in predsodkov. Za izjemno prodorno, visoko strokovno in človekoljubno delovanje na področju demence je s strani predsednika republike Boruta Pahorja prejel državno odlikovanje red za zasluge.

Zvezdan Pirtošek, MD, PhD is a consultant neurologist, Head of Chair of Neurology, Faculty of Medicine University of Ljubljana (UL), Professor of Neurology and co-founder of the interdisciplinary international Middle European postgraduate study of cognitive sciences MEI:CogSci at Universities of Ljubljana, Vienna, Budapest, Bratislava and Zagreb. He serves as the president of Slovenian Brain Council and as a representative of Slovenia in Managing Board of JPND (EU joint programme on research and treatment of neurodegenerative disorders). His main research interests include neurodegenerative diseases, particulary Parkinson's disease and Alzheimer's disease, cognitive neuroscience and ageism as a form of discrimination & prejudice. For his contribution in the field of dementia President of the Republic distinguished him with The Order of Merit of Republic of Slovenia.

Doc. dr. Simona Hvalič Touzery (dr., mag. soc., univ. dipl. soc.) je docentka, zaposlena na Centru za družboslovno informatiko Fakultete za družbene vede Univerze v Ljubljani. Raziskovalno deluje na področju staranja od leta 2001 naprej, z vsebinami, ki posegajo na področje zdravja in zdravstva od leta 2010 naprej; z evalvacijo storitev teleoskrbe in telezdravja pa od leta 2017 naprej. Pred tem je bila zaposlena na Inštitutu Antona Trstenjaka (2001-2010) in na Fakulteti za zdravstvo Angele Boškin (2010-2017). Od leta 2017 dela kot raziskovalka in koordinatorica projektov s področja pametnih tehnologij za aktivno staranje, s poudarkom na učinkih uporabe pametnih tehnologij in njihovo sprejemanje med starejšimi osebami in njihovimi neformalnimi oskrbovalci. Je avtorica številnih znanstvenih in strokovnih prispevkov. Z letom 2020 se je kot Management Committee Substitite vključila v COST Action NET4AGE-FRIENDLY. Je članica Eurocarers in International Society for Gerontechnology (ISG).

Simona Hvalič-Touzery (PhD in Social Work /Msc, BSc in Sociology) is Assistant Professor at the Centre for Social Informatics, Faculty of Social Sciences, University of Ljubljana. She has been working on ageing issues since 2001, on health care and health promotion since 2010, and on telecare and telehealth evaluation since 2017. Before her current position, she worked at Anton Trstenjak Institute (2001-2010) and at Angela Boškin Faculty of Health Care (2010-2017). Since 2017 she has been working as a researcher and coordinator of national and international projects focusing on smart solutions for active ageing. She is particularly interested in the results of the use of telecare for older people and their informal carers and their acceptance. She is the author of numerous scientific and professional publications. She is Management Committee Substitite in COST action NET4AGE-FRIENDLY, individual observer member of Eurocarers and full member of International Society for Gerontechnology.

*S*andra Zampieri se ukvarja z biologijo skeletne mišice, je magistrica biooloških znanosti in doktorica eksperimentalne revmatologije. Je docentka na Oddelku za kirurgijo, onkologijo in gastroenterologinjo v Padovi in profesorica splošne patologije na Medicinski fakulteti Univerze v Padovi. Je članica Italijanskega Meduniverzitetnega Inštituta za miologijo in Medresorskega raziskovalnega centra za miologijo, biologijo, patofiziologijo, klinično obravnavo in biotehnologijo Univerze v Padovi. Avtor več kot 80 objav v mednarodnih znanstvenih revijah. Odgovorna je za neodvisno vrsto raziskav, ki obravnavajo patofiziološke mehanizme izgube mišične mase pri staranju in kaheksiji pri raku z morfološko in strukturno karakterizacijo skeletnih mišic, in živčno-mišičnih povezav, ter izražanje analiznih poti, ki uravnavajo mišični razvoj in oživčenost.

Sandra Zampieri is a muscle biologist with a master degree in Biological Sciences, and PhD in Experimental Rheumatology. She is Assistant professor at the of Department of Surgery, Oncology and Gastroenterology, in Padova and teaching professor of General Pathology, of the School of Medicine at the University of Padua. She is Member of the Italian Interuniversity Institute of Myology and of the Interdepartmental Research Center of Myology, Biology, Physiopathology, Clinical and Biotechnology of the University of Padova. Author of more than 80 publications in international peer-reviewed journals. She is responsible for an independent line of research addressing the patho-physiological mechanisms of skeletal muscle wasting in ageing and cancer cachexia by morphological and structural characterization of skeletal muscle and neuromuscular junction and expression analyses of the signaling pathways that regulate muscle trophism and innervation.

Plenarna
predavanja
Plenary lectures

Vabljeno predavanje

Odnos do podpornih tehnologij med starejšimi osebami in neformalnimi oskrbovalci v Sloveniji

Simona Hvalic-Touzery, Vesna Dolničar
Univerza v Ljubljani, Fakulteta za socialno delo, Center za družboslovno informatiko, Ljubljana,

Uvod. Kljub dokazom o pozitivnih učinkih podpornih tehnologij na življenja starejših oseb in njihovih oskrbovalcev, je razširjenost njihove uporabe še vedno nizka, še posebej v Sloveniji. V zadnjih letih so bile večinoma razvite ozko usmerjene tehnološko podprte rešitve. V okviru mednarodnega projekta i-evAALution smo proučevali sprejetje in učinke uporabe paketa z več pametnimi rešitvami na starejše ljudi, ki živijo doma, in na njihove neformalne oskrbovalce. Predstavljamo preliminarne rezultate dela študije, ki se osredotoča na rezultate osnovnega anketnega vprašalnika med slovenskimi udeleženci študije.

Metode. Randomizirana kontrolirana raziskava je potekala od 2019 do 2021 v Osrednjeslovenski regiji. V vzorec je bilo vključenih 55 diad starejših prejemnikov oskrbe (PE) in njihovih neformalnih oskrbovalcev (SE). PE so bili v povprečju stari 78,6 let (SO = 7,79). 43,6 % jih je imelo v preteklem letu izkušnjo s padcem. SE so bili v povprečju stari 52,8 let (SO = 11,58). Večinoma (71 %) so bili otroci prejemnika neformalne oskrbe. PE in SE so izpolnili vprašalnike v treh ali štirih časovnih točkah: na začetku (pred naključno umestitev v testno ali kontrolno skupino), po namestitvi (samo testna skupina), po 4-5 mesecih (obe skupini) in na koncu, po 12 mesecih (samo kontrolna skupina). Podatki so bili obdelani s statističnim paketom SPSS 20.0. Rezultati. Ugotovili smo statistično pomembno razliko v zanimanju PE in njihovih SE za novo tehnologijo (MPE = 2,63, MSE = 2,12, p = 0,000) ter v njihovem sprejemanju tehnologij (MPE = 3,12, MSE = 3,70, p = 0,004). Tako PE kot SE so kot najpomembnejše lastnosti testiranega paketa pametnih rešitev prepoznali zagotavljanje varnosti (MPE = 4,32, MSE = 4,46), zagotavljanje storitev v nujnih situacijah (MPE = 4,17, MSE = 4,41) in storitve povezane s testiranim paketom (npr. namestitev, vzdrževanje) (MPE = 4,17, MSE = 4,36). Najmanj pomembna lastnost so bile prostočasne dejavnosti (MPE = 1.98, MSE = 2.35).

Razprava in zaključek. Študija prispeva k omejenim empiričnim dokazom o sprejemanju podpornih tehnologij in odnosu do njih med starejšimi osebami in njihovimi oskrbovalci v Sloveniji. Razumevanje njihovega dojemanja podpornih tehnologij in njihovih potreb je koristno tako za razvijalce kot za ponudnike tovrstnih rešitev in lahko doprinese k bolj učinkovitemu uvajanju inovativnih podpornih tehnologij v zdravstvu in oskrbi.

Ključne besede: podporne tehnologije, sprejemanje tehnologij, odnos do tehnologij, randomizirana kontrolirana raziskava

Invited lecture

Attitudes towards smart technologies among older people and their informal carers in Slovenia

Simona Hvalic-Touzery, Vesna Dolničar
University of Ljubljana, Faculty of Social Sciences, Centre for Social Informatics, Ljubljana, Slovenia

Introduction: Despite the growing body of evidence of smart solutions' positive outcomes on older people and their informal carers, the use of these solutions is still low, even more so in Slovenia. In recent years, mostly single smart solutions have been developed, covering only a small range of applications. The international project i-evAALution evaluated the acceptance and the impact of the bundle of several single solutions on community-dwelling older people and their informal carers. We present the preliminary results of only one segment of the whole study focusing on the results of a baseline questionnaire conducted in Slovenia.

Methods: The randomised control trial was conducted in 2019-2021 in the Central Slovenia region. A total of 55 dyads, including older care recipients (PE) and their primary informal carers (SE), were recruited and completed the baseline questionnaire. PE were on average 78.6 years old (SD = 7.79) and 43.6 % had fallen in the past year. SE were on average 52.8 years old (SD = 11.58). The majority (71 %) of SE were the children of the PE. Participants completed questionnaires at three or four measurement time points: at baseline (before randomisation to test or control group), post-installation (test group only), after 4-5 months (both groups), and after 12 months (control group only). Data were processed using the statistical package SPSS 20.0. Results: We observed a significant difference in technology competence between care recipients and carers (MPE = 2.63, MSE = 2.12, $p = 0.000$) and the interest in technology (MPE = 3.12, MSE = 3.70, $p = 0.004$). In addition, the most important features of a tested i-evAALution bundle recognised by both carers and care recipients were safety (MPE = 4.32, MSE = 4.46), emergency services (MPE = 4.17, MSE = 4.41) and technical services (MPE = 4.17, MSE = 4.36). The least important feature was leisure activities (MPE = 1.98, MSE = 2.35).

Discussion and conclusions: This study contributes to a limited empirical evidence on the acceptance and attitudes of older people and their informal carers in Slovenia towards smart solutions in health and social care. Understanding their perceptions of technology and needs can also help the developers of such solutions, as well as the providers in the market, and support better deployment of such smart solutions in health and social care.

Keywords: assistive technologies, technology acceptance, technology attitudes, randomised control trial

Vabljeno predavanje

Bilirubin kot biomarker tveganja za nastanek bolezni: reševanje analitičnega izziva

Sabina Passamonti
Univerza V Trstu, Oddelek za znanost življenja, Trst, Italija

Uvod. Bilirubin je lipofilna molekula, katere normalna koncentracija v serumu je od 3,5–20 μM, od tega se ga <5 % nahaja v obliki bilirubin diglukuronida. Te vrednosti so posledica ravnovesja med dnevno proizvodnjo približno 300 mg bilirubina, ki nastane pri katabolizmu hema, in izločanjem bilirubina diglukuronida z žolčem. Vsako odstopanje od teh vrednosti kaže na povečano razgradnjo hemoglobina ali na odpoved jeter. Dejansko je blago zvišanje bilirubina, tako kot pri Gilbertovem sindromu, povezano z manjšim tveganjem za kardiovaskularne bolezni in zmanjšanim tveganjem smrtnosti. To odkritje je vodilo v iskanje negenetskih dejavnikov, ki povečujejo bilirubin do zgornjih meja njegovih običajnih vrednosti, kar bi omogočilo izboljšati izbiro ustreznih zdravil, prehranskega in življenjskega sloga v obdobju staranja. Zaščitni učinek bilirubina pripisujejo njegovi sposobnosti odstranjevanja prostih radikalov redoks para bilirubin / biliverdin. Vendar pa metode za njegovo analizo v eksperimentalni in klinični medicini zaenkrat še nimamo, kar preprečuje poglobljeno razumevanje dejavnikov in mehanizmov, ki so povezani z natančnim uravnavanjem homeostaze bilirubina. Zato smo za diagnostične potrebe razvili enostavno, visoko zmogljivo metodo za analizo celotnega nabora žolčnih pigmentov v človeški krvi (tj. biliverdin, bilirubin in bilirubin glukuronid), pri kateri potrebujemo majhen volumen (10 μL) kapilarne krvi, odvzete s punkcijo iz prsta.

Metode. Izdelali smo bifunkcionalne sintetične beljakovine (HUG), sestavljene iz beljakovinskega odra (HELP), spojenega z UnaG, ki veže bilirubin in oddaja fluorescenco. Analizo fluorescenčnega bilirubina smo izvedli na mikrotitrskih ploščah s pomočjo ustreznega čitalca.

Rezultati. Opredelili smo kinetiko vezave bilirubina s HUG. Zaradi zelo visoke afinitete je HUG omogočil fluorimetrično titracijo bilirubina v nevtralnih raztopinah brez albuminov v območju 2-100 nM. Ko je bil v raztopini kot kompleks z albuminom, je HUG zajel ves z albuminom vezan bilirubin. Metodo HUG smo preverili in primerjali s standardno metodo, ki temelji na diazo reagentu. Uporabili smo ga za neposredno mikroanalizo bilirubina v eksperimentalni hepatologiji, kot tudi v človeški in živalski krvi.

Razprava in zaključki. Ta metoda odpira možnosti za analizo celotnega nabora krvnih žolčnih pigmentov v eksperimentalni biologiji in medicini ter v kliničnih preskušanjih in prilagojenih medicinskih študijah, kar odpira perspektivo za prepoznavanje dejavnikov, ki sodelujejo pri presnovi bilirubina in homeostazi.

Ključne besede: bilirubin, biomarker, bolezenska tveganja

Invited lecture

**Bilirubin as a biomarker of disease risk:
addressing the analytical challenge**

Sabina Passamonti
University of Trieste, Department of Life Sciences, Trieste, Italy

Introduction. Bilirubin is a lipophilic molecule found in serum at the concentration of 3.5-20 μM, with < 5 % of that being bilirubin diglucuronide. These values result from the balance between daily production of about 300 mg from heme catabolism and the biliary elimination of bilirubin diglucuronide. The clinical value of bilirubinemia has grown from being just a diagnostic biomarker of haemolysis or liver failure to a predictive one. Mild elevations of bilirubin, as in Gilbert's syndrome, are associated with reduced cardiovascular disease and mortality risk. This has sparked the ambition to find non-genetic factors, such as drugs, diets, or life styles, driving mild hyperbilirubinemia. The protective effect of bilirubin is ascribed to the free radical scavenging activity of the redox couple bilirubin/biliverdin. However, high-throughput methods for its analysis are so far lacking, which prevents a deeper understanding of bilirubin homeostasis. We have addressed this unmet diagnostic need by developing a simple, high-throughput method for the analysis of the full set of bile pigments in human blood (i.e., biliverdin, bilirubin, and bilirubin glucuronide), which requires a tiny volume (10 microL) of capillary blood sampled by finger puncture.

Methods. We produced a bifunctional synthetic protein (HUG), composed of a protein scaffold (HELP) fused with UnaG, which binds bilirubin and emits fluorescence. The fluorimetric assay is performed in microtiter plates, requires a multiplate reader, and produces no waste.

Results. We characterised the kinetics of bilirubin binding by HUG. Due to its very high affinity, HUG enabled the fluorimetric titration of bilirubin in albumin-free, neutral solutions in the range 2-100 nM. When in solution as a complex with albumin, all albumin-bound bilirubin was captured by HUG. The HUG method was validated and compared to the standard method based on the diazo reagent. We have applied it for the direct microanalysis of bilirubin in experimental hepatology, human and animal blood.

Discussion and conclusions. This method opens the opportunity to analyze the full set of blood bile pigments in experimental biology and medicine, as well as in clinical trials and personalized medicine studies. We expect to contribute to an improved scientific understanding of bilirubin metabolism and its regulation.

Keywords: bilirubin, biomarker, disease risk

PLENARNA PREDAVANJA | PLENARY LECTURES