Tabriz University of Medical Sciences

AGING RESEARCH INSTITUTE NEWSLETTER

Tabriz University of Medical Sciences (TUOMS)

Letter to the Editor

Forgotten Group: Never-Married Older Women

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The number of older adult women is projected to increase, which probably may be due to longer longevity of women, along with a large age difference between couples. In fact, the aging population is faced with the phenomenon which is considered as "Feminization of Aging"(1). Based on the mentioned issue, older women would encounter with serious implications in various aspects of life such as health care coverage, social, and economic problems(2). The aforementioned concerns would be much more severe among single women including widowed, divorced and never-married ones. It should be noted that widowed and divorced older women are more likely to receive more attention compared to never-married older women. In other words, never-married group may be overlooked in various ways (3). From point of society perspective, being never-married is determined as deviant from cultural and religious norms especially in traditional cultures such as Iran(4). In addition, according to Islamic teachings, if a person gets married, he/she could protect the half of his/her religion (5).

There are some implications that never-married women encounter with: the poverty rate among never-married older women is higher than widowed and divorced individuals (3). One possible explanation may be related to that never-married older women would not have received any spousal pension income after retirement (6). Moreover, some older women are being single because they had to provide support for their frail older parents, which may lead to ignoring their demands and dreams (4). As a matter of fact, these women are more likely to be unemployed and do not receive any wage because they could not abandon their caregiver obligations. Therefore, this group would not have secured life from aspects of economic dimension (1).

Never-married older women are exposed to discrimination and stigmatization. They usually experience social and mental problems which lead to bringing about a burden on their families. They do not have a strong family relationship and there is an inadequate stereotype and prejudice toward them as looser. Moreover, long-lasting loneliness may lead to social isolation in never-married older women. To them, living in community that marriage is a social norm would be difficult. Lack of affection (intimacy relationship between couples) and family bonding [cont. page 3]

Autobiography: Poul Flemming Hoilund-Carlsen

I am a specialist in Clinical Physiology and Nuclear Medicine with main interests in nuclear cardiology, cancer, inflammation, molecular imaging, PET/CT, targeted radioisotope therapy of cancer, method evaluation, personalized medicine, quality assurance and medical priorities. I have been head of two departments of nuclear medicine for 20 years and a leader of research for 26 years. I have been in my present position as a Professor of Clinical Physiology (since 1993) and head of the Dept. of Nuclear Medicine at Odense University Hospital (1993-2007) renewed the specialty in Odense with new buildings, new equipment, new methods, 8 gamma cameras and a new PET-center with 2 cyclotrons, radiochemical laboratories, 5 PET/CT scanners, cellular and research facilities. Since 2008, I am Head of Research and International Relations at the Dept. of Nuclear Medicine in Odense and for the specialty Clinical Physiology and Nuclear Medicine at the Dept. of Clinical Research, University of Southern Denmark. For the last eight years, I have been heading an interdisciplinary research initiative, named TRITON (Targeted Radionuclide Therapy of Neoplasms) focusing on therapy of cancer through "internal radiation" by means of Auger-electron emitting radionuclides. Other present main research interests are in cardiovascular disease including molecular cardiovascular calcification quantified by PET/CT with 18F-NaF and 18F-FDG. In addition, research in musculoskeletal diseases, infection/inflammation, and more recently, cerebral disease with a focus on diaschisis are my other favorite fields. I have organized and participated in education of students in medicine, human pathophysiology, biomechanics, sports medicine, and medical physics for more than 20 years. Since 1985 organizer/co-organizer of numerous specialist courses and of pre-and post-graduate courses in research methodology, human pathophysiology, clinical physiology and nuclear medicine, and medical priorities. For the last eight years, I have organized and headed 17 so-called Abass Alavi Meetings in Odense, i.e., interdisciplinary scientific working symposiums with participation of basic and clinical researchers from up to 25 different hospital and university departments. Over the years, I have served as a member of multiple working groups, scientific councils and assemblies. In recent years, I have personally moved from concepts of physiology and [cont. page 4]

Alavi Meeting at a Glance

The 4th International Alavi Meeting was held by Aging Research Institute, Tabriz University of Medical Sciences;

Prof. Somi and Prof. Pezeshkian, Chancellor of TUOMS and First Deputy of the Parliament of Iran, Respectively with Other Guest Speakers from Other Iranian Universities of Medical Sciences (From Left to Right)

Alavi Message

Dear faculty, students and staff at the Tabriz University of Medical Sciences:

I am writing this letter to welcome you to the 4th international Alavi meeting to be held in Oct 2019 at TUOMS. Unfortunately, I regret that I will not be able to attend this meeting and contribute to it. I am very excited about the ongoing activities of the Aging Center and I am sure this congress will allow scientists from different disciplines to exchange ideas about treating age related disorders and plan for research projects in the future. I am very interested in attracting medical students, trainees and young faculty to the field of gerontology and educating them about the role of modern technology in assessing age related disorders. With my very best wishes for a successful congress, Abass

Prof. Abass Alavi, M.D. (August 2019)

Head of PMRRC's Message

Considering the rapid growth of human knowledge as a result of structured and continuous scientific and research activities in developed societies, the necessity of planned and organized researches and scientific improvement in the country is felt more and more, otherwise, it leads to the unstoppable distance with the global science network. This important issue is handled by research institutes and research centers of Medical Sciences Universities that provide the necessary infrastructure and pave this difficult path. Therefore, efforts to develop research capacities in the field of medical sciences is one of the most valuable and durable services in the health system of the country.

Hardworking scientists in our country have always contributed to the production of medical knowledge in the world and it is hoped that this capacity created at the Physical Medicine and Rehabilitation Research Center will also lead to the development of new scientific evidence in the field of prevention, diagnosis and treatment of musculoskeletal disorders, and further strengthen the status of our country's physicians and researchers in this field. In this regard, the Physical Medicine and Rehabilitation Research Center of Tabriz University of Medical Sciences, aims to establish an organized movement for the development of scientific research (basic and applied) in the field of physical medicine in the light of motivated and experienced scientific members and upgrade position of Tabriz University of Medical Sciences in the national and international scientific assemblies as one of the active centers in the field of scientific research with the attraction of interested researchers and meet the scientific needs of the country in terms of producing up to date technologies and transferring knowledge in the field of Physical Medicine and Rehabilitation by conducting basic and applied research and promote the musculoskeletal health.

Prof. Seyed Kazem Shakouri, M.D.

4th International Alavi Meeting

during this three-days congress (9-11 Oct, 2019), a total of 96 lectures were presented, of which 59 were held in the Shayanmehr Hall on the following eight topics:

- Lifestyle and environmental changes for a healthy aging
- PET Scan
- Successful aging
- Knee osteoarthritis
- Stroke
- Alzheimer's diseases
- Parkinson's diseases
- Osteoporosis

Moreover, among 61 proposals, received at congress secretary, 37 proposals were selected after primary peer review, and presented at the VIP Hall of Faculty of Medicine as an oral presentation. Among them, 5 faculty member-projects and 3 student-projects, were selected as international proposals in collaboration with the Universities of Copenhagen and Odense.

Also, it should be noticed that the peer review of the selected proposals was performed by internatioal refrees from Universities of US, Denmark, Tehran, Neyshaboor, Kermanshah, and also qualified researchers and professors from Tabriz University of Medical Sciences. We congratulate the winners of the forth alavi grant who are as follows:

- Academic Staff:

1- Dr. Homayoun Sadeghi-Bazargani
Road Traffic Injury Research Center, TUOMS

2- Prof. Nosratollah Zarghami
Department of Biochemistry & Clinical Laboratories, School of Medicine, TOUMS

3- Dr. Peyman Keyhanvar
Department of Medical Nanotechnology, School of Advanced Medical Sciences, TUOMS

4- Prof. Samad Ghaffari-Bavil
Department of Cardiology, School of Medicine, TUOMS

5- Prof. Ali Fakhari
Department of Psychiatry, School of Medicine, TUOMS

- Students:

1- Seyyed-Reza Sadat-Ebrahimi
Medical student, Faculty of Medicine, TUOMS

2- Seyyed-Ali Shamekh
Medical student, Faculty of Medicine, TUOMS

3- Elham Lotfalinezhad
Ph.D. Candidate in Gerontology. Department of health education and promotion, TUOMS

Furthermore, 4 workshops were held during these 3 days as follows:

- National Institute for Medical Research Development (NIMAD): Dr. Mesgarpour B. (NIMAD, MOHME, IR)
- Medication-Related Challenges among Older Adults: Prof. Bazargan M. (UCLA, CDU, US)
- How to Find a Research Idea and Setting the Right Team: Dr. Brock. B. (SDCC, DK)
- Systematic Review and Meta Analysis: Dr. Ghojazadeh M. (TUOMS, IR)

Additionally, the conference was attended by not only 87 speakers from TUOMS but also 9 speakers from universities in Copenhagen, USA, Tehran, Neyshabur, and Kermanshah.

Professor Mohsen Bazargan from UCLA in opening ceremony

Executive Committee with Head and Research deputy of Medical Faculty and Manager of Aging Research Institute (Dr.Pourfathi H., Prof Mahmoodpoor A., Dr. Araj-Khodaei M.)

Prof. Hassan Soleimanpour
Scientific Secretary of Congress

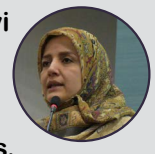
Prof. Seyed Kazem Shakouri,
President of Congress

Dr. Hojjat Pourfathi,
Head of Faculty of Medicine

Dr. Sarvin Sanaie, Executive Secretary of Congress

Dr. Birgitte Brock from SDCC, Denmark

Guests' Comments about Meeting



The International Alavi meeting is a new initiative to reinforce international research. This year, as in prior years, this congress has encouraged researchers to submit research projects with international standards and by supporting the top research projects, it seeks to promote international collaboration, and additionally promote the culture and quality of Tabriz University of Medical Sciences research projects.

Any researcher traveling outside of Iran during a collaborative research project with other countries is in fact an ambassador who intentionally or unintentionally delivers or presents the culture and image of his or her workplace to others, thus the more research environment at research centers and universities in country illustrate "Good Research Practice", the more beautiful and attractive picture of domestic research will be. On the other hand, it is expected that the research ambassadors, by using their experience in research environments in developed countries, will try to import the spirit of "high quality" and research standards, which in this case will fulfill their duty to the country's academic community.

In addition, welcoming international researchers in the country and benefiting from their recommendations and experiences in dealing with research and policy making challenges in the country will even the way for researchers in the country and will speed them up to reach the goal. Supporting collaborative research with Denmark at the Alavi meeting, which is held by the Aging Research Institute, can be considered as a successful experience for other universities and medical research centers in the country.

Dr. Bita Mesgarpour
Iran Ministry of Health and Medical Education

Excellent opportunity to meet colleagues from various countries and universities and exchange news on recent developments in the field of aging research. Many reports by young researchers, who showed excellent professional skills and proposals. Attending the conference was a real pleasure. Thanks to outstanding help from the organizing team,which put in a tremendous effort and helped with all our request. With best regards;

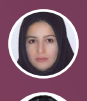
Dr.Kamran Mansouri
Kermanshah University of Medical Sciences

Photography Spotlight

A photo contest was held to add a little artistic taste to the scientific atmosphere of the congress. All of 61 pictures were displayed, and the best three were chosen by the votes of the participants.

- Contest winners:

First winner: Ms. Samira Abdolalizadeh (Public Health student in Tabriz University of Medical Sciences)



Second winner: Ms. Marzieh Hosseinzadeh (MSc in Aging Research Institute)

Third winner: Dr. Hoorolnesa Ameli (Faculty of Qom University of Medical Sciences)

• First winner

• Second winner

• Third winner

Letter to the Editor [cont.]

bring about highly problematic and less delighted lives in comparison with married persons (7).

Furthermore, never-married older women do not have healthier profiles as opposed to married persons. The mortality rate among never-married older women is higher than their married counterparts (2).

Unfortunately, in our society there is not service for single older women particularly never married older women because singlehood manner is not acceptable for our culture. Our society do not have any rational planning relating to this group, whereas the number of single older women is growing due to some social and economic contexts. According to the last consensus in 2016, the percent of never-married older women with formal education and no formal education is 0.34% and 0.23%, respectively(8). This statistics could be a warning for policy-makers and stakeholders who play a pivotal role in decision-making in the field of older adults programs.

The most important future concern is related to providing appropriate type of formal services (long-term care) could meet these women's needs (7). On the other hand, the government have not provided supportive services neither for older women (married groups) nor for single ones (divorced, widowed and never-married groups). This issue could have detrimental effects on our society from various aspects. In Iran, there is no research appropriately addressing exclusive experiences of unmarried women specifically in the context of aging. Therefore, it is suggested that future projects draw paying more attention to single older women particularly never-married older women be conducted.

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References:

1. Tuohy D, Cooney A. Older Women's Experiences of Aging and Health: An Interpretive Phenomenological Study. Gerontology & geriatric medicine. 2019;5:1-10.
2. Davidson PM, DiGiacomo M, McGrath SJ. The feminization of aging: how will this impact on health outcomes and services? Health care for women international. 2011;32(12):1031-45.
3. Tamborini CR. The never-married in old age: Projections and concerns for the near future. Social security bulletin. 2007;67(2):25.
4. Band-Winterstein T, Manchik-Rimon C. The experience of being an old never-married single: A life course perspective. The International Journal of Aging and Human Development. 2014;78(4):379-401.
5. Meraj MA. The importance of marriage in Islam. International Journal of Research-granthaalayah (IJRG). 2018;6(11):2394-3629.
6. Baumbusch JL. Unclaimed treasures: Older women's reflections on lifelong singlehood. Journal of Women & Aging. 2004;16(1-2):105-21.
7. O'brien M. Never married older women: The life experience. Social Indicators Research. 1991;24(3):301-15.
8. Iran SCO. The Statistical Yearbook of Iran 2019. Available from: https://www.amar.org.ir/english/Iran-Statistical-Yearbook.

Physical Medicine and Rehabilitation Research Center

Physical Medicine and Rehabilitation Research Center as the first research center in the field of physical medicine and rehabilitation in Iran, Is one of the research centers of Tabriz University of Medical Sciences and was a subsidiary of the common chronic diseases Management research institute, Which is now a subsidiary of the Aging Research Institute. Given the research background and years of experience of a number of researchers and with the guidance of Prof. Dr. Mohammad Sadegh Sadigh Mostofi, the first nucleus of the research center was created in 2010 by the effort of founding board members, including Prof. Dr. Seyed Kazem Shakouri, Dr.Yaghoub Salek Zamani, and Prof. Dr. Vahideh Topchizadeh, Prof. Dr. Bina Eftekharsadat and Dr.Fariba Eslamiyan, and its intention is to compile and implement research projects in the field of physical medicine and rehabilitation, and the production and dissemination of new technologies in musculoskeletal disorders and maximize the use of existing research capabilities. The center aims to be a dynamic and influential organization, a reference center and an innovator in the field of research, and to meet the fundamental research needs in its field of activities, and to increase the scientific status of the country in this regard. Currently, the scientific members of this center are as follows: Prof. Dr. Seyed Kazem Shakouri, Dr.Yaghoub Salek Zamani, and Prof. Dr. Vahideh Topchizadeh, Prof. Dr. Bina Eftekharsadat, Dr.Fariba Eslamiyan, Dr.Neda Dolatkhah,Dr.Alireza Pishgahi and Dr.Azizeh Farshbaf Khalili.

Some of the major goals of this center include:

- To provide a suitable platform for research and science production with the required benefits
- Basic, applied and clinical research on neuromuscular disorders and technological research in the field of physical medicine.
- Quantitative and qualitative improvement of research and human resources of researcher and research works and its efficiency and effectiveness.
- Encouragement and empowerment of scientific members in research on neuromuscular disorders and technological research in the field of physical medicine.
- Attracting the attention and cooperation of relevant research and development centers both inside and outside the country
- To establish scientific, research, and research communication within and outside the country
- Encouragement and guidance of graduate students in the field of research and research in the field of activity of the center
- Improved scientific rank of research center
- To publish the results of the center's research in national and international journals

Considering the research priorities of the center, including rehabilitation of musculoskeletal disorders and Pain Medicine, rehabilitation in neurological disorders and electro diagnosis, more than 120 research projects and theses have been approved and it should be noted that over 200 articles indexed in databases such as Web of Sciences, Pubmed, Scopus, and more than 50 persian articles as well as more than 50 articles at congresses in lectures and posters have been published. To create a suitable platform for research and production of science, the center has been providing the following facilities: foot scanner, horse riding simulator, body composition analyzer, biodex balance system, isokinetic dynamometer and posture analyzer. Several dissertations and research projects have been approved using the above mentioned devices.

Student Letter

Autophagy: As A Therapeutic Approach Against Alzheimer's Disease

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Alzheimer's disease (AD) is the most prevalent type of dementia and a chronic neurodegenerative disorder, which is characterized by a progressive deficiency in memory and cognitive functions [1]. More than 50 million people are affected by AD worldwide [2]. Today, there is no available therapy to block or slow down AD progression, and the responsible mechanism of the disease is unclear [3]. AD is described by the accumulation of misfolded proteins such as Amyloid beta (Aβ) peptides, which form Aβ plaques with neurotoxic properties, and hyperphosphorylated tau protein, forming the neurofibrillary tangles in the brain parenchyma. In addition, chronic activation of microglia and astrocytes promotes several inflammatory pathways, creating an adverse environment for neuronal survival [4, 5].

The protein homeostasis essential for the survival of organisms is controlled by the regulation of either synthesis or degradation. Autophagy is a lysosomal degradation process accountable for the clearance of most long-standing proteins and organelles. In this pathway, cytosolic contents are engulfed in double-membrane vesicles called autophagosomes, which then fuse with lysosomes for digestion [6,7]. A number of studies have revealed that autophagy is dysregulated in AD, and its activation is considered as a novel therapeutic approach [8,9]. Autophagy can influence the generation, secretion and clearance of Aβ, and it will also affect the phosphorylation status and clearance of tau, which possibly will contribute to the progress of AD. First, along with Aβ protease mediated degradation, autophagy is another major Aβ clearance pathway. Autophagy facilitates the degradation and the clearance of amyloid precursor protein (APP) [10,11]. Second, autophagy-lysosome system is revealed to be a novel way for Aβ production in the process of aging or under pathological conditions [12]. Third, autophagy is also involved in the secretion of Aβ. In the autophagy deficient mice, a decrease in Aβ peptides secretion co-occurs with the accumulation of Aβ inside the brain cells, with a probable triggered neurodegeneration which can induce memory impairment [13]. For the case of tau, although ubiquitin–proteasome system (UPS) was considered to be the major pathway for tau turnover, recent studies suggested that autophagy may be another effective degradation route for the substance. New data suggested that dysfunction of autophagy-lysosome system forms tau oligomers and accelerates tau aggregation and toxicity, and in contrast, induction of autophagy could decrease this aggregation and thus tau pathology [14,15]. Hyperphosphorylated tau was found to be accumulated in the brains of autophagy deficient mice, and hyperphosphorylated tau may possibly cause the accumulation of immature autophagosomes in axons and affect axonal transport and degradation, thus autophagosomes couldn't be transported to the cytoplasm and consequently the fusion with lysosomes would be unsuccessful [16]. Given the critical role of the misfolded proteins in AD and the recognized dysfunction of autophagic flux in AD brains, and the importance of autophagy in cellular homeostasis and prevention of neurodegeneration in several animal models, autophagy modulation is an ideal therapeutic candidate. Therefore, these findings have opened the prospect of using autophagy modulators as a therapeutic approaches against AD.

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References:

1) Scheltens, P., Blennow, K., Breteler, M. M., De Strooper, B., Frisoni, G. B., Salloway, S., et al. (2016). Alzheimer's disease. Lancet 388, 505–517. doi: 10.1016/S0140-6736(15)01124-1
2) Hodson, R. (2018). Alzheimer's disease. Nature 559:S1. doi: 10.1038/d41586-018-05717-6
3) Alzheimer's Association (2018): 2018 Alzheimer's disease facts and figures. Alzheimers Dement 14:367–429.
4) Wang X, Zhu M, Hjorth E, Cortés-Toro V, Eyjolfsdottir H, Graff C, et al. (2015): Resolution of inflammation is altered in Alzheimer's disease. Alzheimer's Dement 11:40–50.
5) Chun H, Lee CJ (2018): Reactive astrocytes in Alzheimer's disease: A double-edged sword. Neurosci Res 126:44–52.
6) Boya P, Reggiori F, Codogno P (2013): Emerging regulation and functions of autophagy. Nat Cell Biol 15:713–720.
7) Stolz A, Ernst A, Dikic I (2014): Cargo recognition and trafficking in selective autophagy. Nat Cell Biol 16:495–501.
8) Cheng J, North BJ, Zhang T, Dai X, Tao K, Guo J, Wei W (2018): The emerging roles of protein homeostasis-governing pathways in Alzheimer's disease. Aging Cell 17:e12801.
9) Nixon RA,Wegiel J, Kumar A, YuWH, Peterhoff C, Cataldo A, et al. (2005): Extensive involvement of autophagy in Alzheimer disease: An immunoelectron microscopy study. J Neuropathol Exp Neurol 64:113–122.
10) Miners JS, Baig S, Palmer J, Palmer LE, Kehoe PG, Love S (2008) Abeta-degrading enzymes in Alzheimer's disease. Brain Pathol 18(2):240–252
11) Zhou F, van Laar T, Huang H, Zhang L (2011) APP and APLP1 are degraded through autophagy in response to proteasome inhibition in neuronal cells. Protein Cell 2(5):377–383
12) Yu WH, Cuervo AM, Kumar A, Peterhoff CM, Schmidt SD, LeeJH Mohan PS, Mercken M, Farmery MR, Tjernberg LO, Jiang Y, Duff K, Uchiyama Y, Na¨slund J, Mathews PM, Cataldo AM, Nixon RA (2005) Macroautophagy: a novel beta-amyloid
peptide-generating pathway activated in Alzheimer's disease. J Cell Biol 171:87–98
13) Nilsson P, Saido TC (2014) Dual roles for autophagy: degradation and secretion of Alzheimer's disease Ab peptide. BioEssays 36(6):570–578
14) Hamano T, Gendron TF, Causevic E, Yen SH, Lin WL, Isidoro C, Deture M, Ko LW (2008) Autophagic-lysosomal perturbation enhances tau aggregation in transfectants with induced wild-type tau expression. Eur J Neurosci 27(5):1119–1130
15) Congdon EE, Wu JW, Myeku N, Figueroa YH, Herman M, Marinec PS, Gestwicki JE, Dickey CA, Yu WH (2012) Methylthioninium chloride (methylene blue) induces autophagy and attenuates tauopathy in vitro and in vivo. Autophagy 8(4):609–622
16) Inoue K, Rispoli J, Kaphzan H, Klann E, Chen EI, Kim J, Komatsu M, Abeliovich A (2012) Macroautophagy deficiency mediates age-dependent neurodegeneration through a phospho-tau pathway. Mol Neurodegener 7:48

International Project (No.4)

Effect of Bone Marrow Derived Exosomes Loaded with Estradiol on Bone Defect

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One of the most important and controversial issues of old age is the issue of bone loss and subsequent complications caused by them, especially in old ages. Bone problems (defects, fractures, inflammations and Etc.) can impose large costs in world especially Aging societies.

Today researches to solve these problems in the context of the use of biological scaffolds, stem cells and their derivatives (medicine reconstruction and tissue engineering) continues.

One of the best structures are Synthetic Scaffolds Especially Hydrogel Scaffolds that these scaffolds have shown different positive results. Other research cases involve the use of stem cells for treatment. In one of the newest research fields, a non-cellular treatment method has been performed.

This method is performed by using one of the important cell derivatives, the exosomes. This method is called exosome therapy. Exosomes are cell derived vesicle released by almost all cell types and are present in all body fluids and cell culture media. Exosomes contain several different proteins including growth factors, cytokines, lipids and microRNAs. Exosomes are also used in the field of drug delivery. Bone marrow derived stromal cells are one of the most usable sources of exosomes that are the appropriate source for exosome extraction.

Estradiol is of estrogenic hormones that this hormone has positive effects including stimulation of bone production and anti-inflammatory effects. The hormone will be loaded into exosomes for osteogenesis stimulation.

For this purpose, the exosome will be harvested from bone marrow plasm and then estradiol will be loaded in exosomes. Then exosomes will be loaded in hydrogel scaffold and eventually loaded scaffold will be delivered to defect site till the possible effects of scaffold and estradiol loaded exosomes to be evaluated in different groups.

Top Article

Congratulations to Dr. Saeid Safiri, Assistant Professor of Epidemiology, TUOMS, on having his article entitled: Global, regional and national burden of rheumatoid arthritis 1990–2017: a systematic analysis of the Global Burden of Disease study 2017 published in Annals of the Rheumatic Diseases (ARD) journal (IF=14.299) which have been selected as the top article of this issue. To show greetings, Aging Research Institute has given him a special grant.

Art (A Poem in Honor of Aged People)

Wrinkled eyes, hands shaken cold
Silver hair, but they have the gold
Gift of time, wisdom of the old

Pooriya Sadeghi
Medical student, TUOMS

Autobiography: Poul Flemming Hoilund-Carlsen [cont.]

biochemistry towards exploiting the ideas of molecular imaging, thanks to Prof. Abass Alavi of Pennsylvania University, with whom I and our department in Odense have a broad and well-developed scientific collaboration since early 2011. Prof. Alavi and I met at the Postgraduate Medical School in Chandigarh, India, in November 2010; since then we have been in almost daily contact, and Alavi; who is a pioneer in Nuclear Medicine and the person who has inspired the development and clinical implementation of FDG-PET and FDG-PET/CT imaging worldwide, has become a close friend of mine. This friendship and collaboration continues with emphasis of dual-time imaging, enzymatic conditions for FDG imaging, and in particular development of reliable quantitative methods for PET processing. Recently, ideas and infrastructure from this ongoing collaboration is searched transferred educationally and scientifically into newly established collaborations with the Tabriz University of Medical Sciences in Tabriz and the Shahid Beheshti University in Tehran.