



8<sup>th</sup> International Conference on

## **Dementia and Dementia Care**

September 18-19, 2017    Dublin, Ireland

# Posters

*Euro Dementia Care 2017*

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## Dementia in eastern Mediterranean countries: A systematic review

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**Background:** The increase in the older adults' population is a global phenomenon, including in Eastern Mediterranean (EM) countries, where dementia is conventionally hidden.

**Aim:** To explore dementia and cognitive impairment among geriatric population in EM countries and to identify the gap in the literatures.

**Method:** A systematic search was conducted in scientific databases including DelphiS, CINAHL, MEDLINE, and ProQuest along with google scholar looked for peer-reviewed articles between 2007-2017. Search keywords included older adult, old\*, elder\*, geriatric, and senior, in combination with dementia, Alzheimer's\*, cognitive impairment, cognitive decline, memory loss. Further combined with Saudi, Arabia\*, Middle East\*, or Eastern Mediterranean.

**Result:** After obtaining critical appraisal tools, a total of 31 studies were included with four themes identified. (1) culture: The older adult within EM is highly respected and introducing them to a healthcare facility consider an abandonment of family duty. The term dementia is stigmatised and believed that it caused by fate. (2) Prevalence, comorbidity, and gender: EM population has become more cognisant of Dementia prevalence, and many studies indicated that it is high. Many EM older adults are having at least one chronic illness and low life-satisfaction. (3) Recognition and tools: Language barriers and lack of verified assessment instruments are considered issues in recognising and treating dementia. Despite high illiteracy among older adults within EM community, many are using Mini-Mental State Examination for dementia screening. Healthcare workers are facing a challenge in evaluating psychometric properties. (4) Healthcare workers: lack of knowledge about geriatric and dementia, while geriatric nursing/medicine been introduced recently in some Saudi's universities.

**Conclusion/recommendations:** Inconsistency published studies on dementia in the region. High demand for creating an educational programme and providing policies to promote practical gerontological nursing/medicine. Healthcare professionals need to become aware of health intentions shared by people from different sociocultural, religious, and linguistic backgrounds to deliver culturally sensitive care.

## Biography

Sara Mahmoud Yaghmour is a psychogeriatric nursing lecturer at King Abdulaziz University and now a PhD student at the University of Southampton. Currently, she is working on a project to investigate nurses' perception and learning needs when caring for people with dementia using a diary-interview method. Her research interests include nursing education, psychogeriatric nursing care, and people with dementia care. "She aims to be capable of developing and communicating new knowledge in psychogeriatric nursing through designing and carrying out high-quality research and training".

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## Drug burden and functional outcomes in nursing home patients with Dementia

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**Purpose:** The Drug Burden Index (DBI) is a tool to quantify the anticholinergic and sedative load of drugs. Establishing functional correlates of the DBI could optimize drug prescribing in patients with dementia. In this cross-sectional study, we determined the relationship between DBI and cognitive and physical function in a sample of patients with dementia.

**Methods:** Using performance-based tests, we measured physical and cognitive function in 140 nursing home patients aged over 70 with all-cause dementia. We also determined anticholinergic (AChDBI) and sedative (SDBI) drug burden separately and in combination as total drug burden (TDB).

**Results:** Nearly one half of patients (48%) used at least one DBI-contributing drug. In 33% of the patients, drug burden was moderate ( $0 < \text{TDB} < 1$ ) whereas in 15%, drug burden was high ( $\text{TDB} \geq 1$ ). Multivariate models yielded no associations between TDB, AChDBI and SDBI, and physical or cognitive function (all  $p > 0.05$ ).

**Conclusions:** A lack of association between drug burden and physical or cognitive function in this sample of patients with dementia could imply that drug prescribing is more optimal for patients with dementia compared with healthy older populations. However, such an interpretation of the data warrants scrutiny as several dementia-related factors may confound the results of the study.

### Biography

Lianne M J Sanders is a clinical neuropsychologist who currently does a PhD on the effects of exercise in patients with dementia. The aim of her PhD project 'Train the Sedentary Brain' (Deltaplan Dementia, ZonMW: Memorabel) is to delay the progression of dementia with a combined aerobic and strength exercise program. Within this project, we investigate the dose-response relationship between exercise and cognition, and possible moderating effects of ApoE4 carriership on exercise effects, in a sample of patients with mild-to-moderate dementia.

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## Prion disease – The last diagnosis

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A 73-year-old lady was referred to a neurologist after two geriatric consults due to deteriorating cognitive function, ataxia and weakness. She was completely dependent in slightly over one year. From walking with a frame, she became wheelchair bound. Her cognition continued to decline and could not feed herself due to apraxia. When assessed she was found to have rigidity, myoclonus and left-right disorientation. Overall impression was that she had prominent extrapyramidal and cortical disease.

**Diagnosis:** Due to rapid symptoms progression, typical MRI brain findings and highly specific CSF 14-3-3, S100B and RT-QuIC, she was diagnosed with probable sporadic Creutzfeldt-Jakob disease(sCJD). Brain biopsy post-mortem would confirm the diagnosis.

**Discussion:** SCJD has unclear mechanism of initial conformational change of prion protein. CJD has worldwide distribution, where 85% are sCJD and occurs at rate of 1 in 1,000,000 population per year. Mortality rate is less than 1 per million depending on country. Researchers mention difficulties in ascertaining accurate incidence, prevalence and mortality rate due to under-reporting, under-awareness and poor diagnostic capability. Possibly CJD is higher than thought due to misdiagnosis

### Biography

Ana Ivancheva graduated from Medical University of Sofia in 2016. She has completed her internship in Sofia, Bulgaria. She is currently completing BST programme in internal medicine at MUHI. She is an author in a medical textbook in Bulgaria and is currently pursuing her interest in academic writing.

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## Remembering Normal pressure hydrocephalus

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A 65-year-old morbidly obese man was referred to neurosurgeon after general practitioner(GP), geriatric and psychiatric consults. He presented with forgetfulness, personality changes, bradyphrenia, depression and mood changes consistent with dementia. He also experienced ataxia, bradykinesia, urinary urgency, frequency and incontinence. The patient's gait and cognitive deterioration started two years prior and progressively declined. The onset of urinary incontinence was one year ago and was consistent with detrusor overactivity.

Initially the patient was misdiagnosed with vascular dementia, Alzheimer's disease, frontotemporal dementia and depression. Due to progressive deterioration of symptoms and typical imaging findings he was finally diagnosed with idiopathic NPH after a geriatrician consultation, 2 years after symptoms onset.

NPH has an unclear mechanism of cerebral ventricles expansion and distortion of fibres of corona radiata. NPH has worldwide distribution where 50% are idiopathic. Prevalence is 0.5% in over 65 years of age and occurs equally in both sexes. Incidence is 5.5 per 100,000 population per year. NPH is thought to be higher than perceived due to misdiagnosis.

### Biography

Hakim Ghani graduated from Medical University of Warsaw in 2014. He underwent the UK foundation programme in Malta. He is currently completing the Basic Specialist Training(BST) in internal medicine at Mayo University Hospital(MUH). He has completed the MRCPi examination in Internal Medicine and is currently involved in audits and research.

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# Accepted Abstracts

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## Developing a care committee for Dementia patients in a rehabilitation setting

**Aisling Davis**

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**Introduction:** The traditional patient profile in Clontarf Hospital is changing. There is an increase in geriatric rehabilitation patients and therefore an increase in co morbidities associated with older age, cognitive impairment. These patients have specific needs and it is imperative that these needs are addressed from a hospital wide perspective.

**Methodology:** A Dementia Care Committee has been established in order to improve the care of patients with cognitive impairment through; staff education, development of care pathways and service improvement. An invite to attend the group was extended to all staff and disciplines. The committee has monthly meetings to provide guidance on the care of the patient with cognitive impairment and to increase awareness at an organisational level of cognitive impairment and its' impact on function.

**Results:** Areas of intervention/ improvement have been identified and sub groups have been formed in order to address same. These include- Staff Education -development of a Dementia Awareness Training Programme. There is poor awareness of the types of dementia and its' impact on functional abilities and rehabilitation potential in the hospital.

Improving the Physical Environment. The hospital was not designed for this patient population and would benefit from becoming more "dementia friendly". Signposting- sourcing information regarding dementia supports in the locality and directing patients to same. Developing a memory rehabilitation group in conjunction with the OT department.

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## Practice of Adaptive image-guided radiotherapy (IGRT)

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**Purpose:** Accurate image guided radiotherapy (IGRT) using MVCBCT is essential prerequisite to practice IMRT or 3DCRT and forms an important factor in the quality of actual radiation delivery. The capability of generating an entire volumetric MV-CBCT data set in a single-gantry rotation, allows 3D visualization of the tumor prior to the delivery of treatment and correlation with reference plan CT data. This permits corrections of shifts beyond an acceptable limit.

**Material and Methods:** Prior to treatment, 2D and/or CBCT (on ARTISTE Siemens and Varian ix) was acquired and setup errors with reference to X, Y, Z were corrected online in 20 patients of breast, head & neck (H&N) and prostate. A second CBCT was acquired after the correction process and coordinates for daily set-up and images were obtained.

**Results:** A total number of 211 CBCT/ or 2D images were performed in 20 patients. The sites included – breast (n=10), H&N (n=6) and prostate (n=4). Images were evaluated for 95, 58 and 58 fractions respectively. The shifts observed in X, Y and Z axes are summarized below: In addition, rotational errors were observed in 7% (15/211 images). These include breast (2%), H&N (1%) and prostate (4%), which were also corrected by IGRT.

**Conclusion:** Despite immobilization devices, shifts beyond the acceptable limits of 2mm were observed during online CBCT or 2D imaging with IGRT in breast (79.9%), H&N (49.2%) and prostate (96.6%). IGRT permits detection and online corrections of these shifts which would have been otherwise gone unnoticed leading to dosimetric errors during radiation therapy.

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## Understanding patient profiles: A snapshot audit of cognitive impairment in a rehabilitation setting

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**Introduction:** Older adults account for 12% of the total population (Central Statistics Office, 2013). The patient profile in Clontarf hospital is changing and there is an increase in geriatric rehabilitation patients. These patients are more likely to have cognitive impairment than their younger contemporaries.

**Methodology:** A real time snap shot audit was completed on 15th February 2017 to reflect current patient profiles. All patients in the organisation were reviewed and data regarding cognitive assessments and scores were gathered. 5 wards and 143 patients were included.

**Results:** 68 patients (48%) had received a cognitive assessment. Only 2 patients scored as "normal" ( $\geq 82/100$  on ACE-R (Addenbrookes Cognitive Exam),  $\geq 26/30$  on MOCA (Montreal Cognitive Assessment)). Therefore 66 patients scored as "cognitively impaired" - which is 46% of patients within the organisation.

### Sub groups

- MOCA(n=32) 5 scored severe ( $\leq 10$ ), 12 moderate (11-20) and 16 mild (21-25).
- MOCA BLIND(n=3) 1 scored severe ( $\leq 10/22$ ) and 2 scored moderate (11-18)
- ACE-R(n= 21): 2 scored severe( $\leq 45/100$ ), 9 moderate(46-65) and 10 mild (66-81)
- Mini ACE-R(n=6): 2 scored moderate ( $\leq 20/30$ ) and 3 mild (21-25)
- MMSE(n=4): 1 scored severe and 3 mild (20-24).

**Conclusion:** Almost half the patients in the organisation had cognitive assessment scores that would indicate a degree of cognitive impairment. This is a significant finding and concern for a rehabilitation hospital. This increased insight into cognitive status can provide therapist with increased understanding of patient profiles and highlights the urgent need to adapt rehabilitation practice to cater for these patients. It may be of benefit to standardise cognitive assessments to allow for more direct comparisons to be made, however it is important to note that OTs' are guided by their clinical reasoning abilities in order to match the appropriate assessment to the patient..

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## Hepcidin quantification in Neurodegenerative diseases

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**Aim:** Neurodegenerative diseases are conditions in which the nervous system progressively and irreversibly deteriorates. Neurodegenerative diseases are often late manifestation of disorders typified by Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD) and amyotrophic lateral sclerosis (ALS). AD depends on age, is chronic disease, a leading cause for dementia. Brain atrophy is main sign in AD cases. PD is another neurodegenerative disease, and also usually involves elder people. HD is characterized by abnormal involuntary writhing movements called chorea. We aimed to find a connection between iron homeostasis regulator hepcidin and neurodegenerative diseases patients.

**Materials and Methods:** 17 patients with Huntington's disease, 23 with Alzheimer's and 19 with Parkinson's disease were included; 31 females (52.5%). They had clinical and neurological examination, EMG. They were evaluated for routine biochemical parameters, and additional serum hepcidin and glutathione peroxidase (GPX) were quantified. Hepcidin and GPX were evaluated by ELISA methods. The results obtained from HD, AD and PD patients were compared to age and gender matched healthy controls. Statistical analysis of established results was performed using Pearson's correlation and Student's paired t-test.

**Results:** We found statistically significant elevated serum hepcidin levels in HD patients compared to healthy controls ( $51.6 \mu\text{g/L} \pm 10.2 \mu\text{g/L}$ ;  $20.4 \mu\text{g/L} \pm 4.9 \mu\text{g/L}$ ;  $P < 0.001$ ). In AD and PD cases we found also increased serum hepcidin ( $61.4 \mu\text{g/L} \pm 12.3 \mu\text{g/L}$ ; and  $54.9 \mu\text{g/L} \pm 5.7 \mu\text{g/L}$ ), compared to controls ( $P < 0.001$ ). GPX activity was decreased in HD patients compared to control group ( $7.8 \text{ pg/mL} \pm 1.9 \text{ pg/mL}$ ;  $35.8 \text{ pg/mL} \pm 11.9 \text{ pg/mL}$ ;  $P < 0.005$ ). In AD and PD cases we found also decreased GPX levels ( $8.4 \text{ pg/mL} \pm 2.2 \text{ pg/mL}$ ;  $8.9 \text{ pg/mL} \pm 1.4 \text{ pg/mL}$ ), compared to controls ( $P < 0.05$ ).

**Conclusion:** Because of increased concentration of metals passing blood-brain barrier (BBB) in connectivity of neuronal medium with blood vessels. This makes the brain more likely to develop neurodegeneration. Serum hepcidin quantification might be a new biomarker for early HD, AD and PD diagnosis.

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## Effects of physical activity program on Cognitive function, Depression and quality of life in Alzheimer patients with first stage: A randomized controlled trial

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**Purpose:** The aim of this study is to determine the effect of a Physical Activity Program for Alzheimer's patients with first stage on their cognitive functions, depression and quality of life.

**Materials and Methods:** This is single blinded randomized controlled trial. The experimental group included 75 Alzheimer's patients (40 in the experimental group, 35 in the control group) who were determined by physicians, who were diagnosed with Alzheimer's, who were in the moderate stage of the disease (SMMSE score: 23-24), and who were allowed to do physical activity practice. An information form including the participants' sociodemographic characteristics and medical history, the Standardized Mini Mental State Examination (SMMSE), The Quality of Life-Alzheimer's Disease scale (QoL-AD) and Beck Depression Scales were used for data collection. Statistical analysis was done using SPSS 18.0 (IBM, Armonk, USA). Continuous data was presented as medians (interquartile range), categorical data as counts and percentages. The researchers used descriptive statistics, including numbers, percentages, means and standard deviations.

**Results:** This study showed that the physical activity program improved the cognitive functions, depression and quality of life of Alzheimer's patients first stage ( $p < 0.05$ ). These results suggest that regular physical activity programs should be used in routine practices to prevent the decline of cognitive functions, depression and to improve quality of life of first stage Alzheimer's patients.

**Conclusion:** According to this study's findings, the cognitive functions, depression and quality of life of first stage Alzheimer's patients improved thanks to a Physical Activity Program.

**Keywords:** Alzheimer patients, Physical Activity Program, cognitive functions, depression, quality of life, randomized controlled trial.

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## Driving Behavior in patients with MCI/mild Dementia

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Driving is a multimodal activity that integrates a variety of cognitive resources and is associated with higher self-esteem and increased quality of life. Research evidence from on-road and driving simulator studies demonstrate that persons with mild dementia often make driving errors and are involved in road fatalities although certain patients may retain adequate driving skills. Existing literature for MCI patients is sparse and does not indicate a consistently worse overall driving performance in comparison to healthy drivers. Most studies have demonstrated only moderate relationships between cognitive performance and driving ability. Thus, an individualized approach that integrates both the administration of neuropsychological scales as well as a comprehensive neurological assessment is needed. Our current research focuses at the exploration of driving behaviour in individuals with MCI/mild Dementia by applying a driving simulator experiment. Our findings suggest that certain measures of motor coordination and cognition (i.e. working memory, visuospatial memory, information processing speed and psychomotor vigilance) could serve as predictors on a variety of driving indexes (i.e. accident risk, reaction time, average driving speed, lateral position). Additionally, quality of sleep and depressive symptomatology seem to be useful predictors of driving behavior in drivers with MCI. Driving under the effect of distractors (i.e. use of mobile phone or conversing with a passenger) significantly affects driving performance of individuals with MCI. Finally, according to our results patients with MCI and mild AD present significant difficulties to accurately estimate their driving performance in comparison to a group of healthy elderly drivers.

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## **Animal models of Schizophrenia indicate a requirement for the improvement of Antipsychotic Drugs: Understanding their mechanism of action is the first step**

**Uzuneser Taygun C, Weiss Eva-Maria, Wrosch Jana K and Müller Christian P**  
University Hospital of Erlangen, Germany

Schizophrenia is a neuropsychiatric disorder, causing psychosis, affective and cognitive disturbances in patients. Even though the etiology of schizophrenia has not yet been clearly understood, neurochemical and behavioral abnormalities involved in the disease state can be mimicked in animals. We sensitized rats by repeated amphetamine (AMPH) exposure, which caused schizophrenia-related disruptions, including exaggerated locomotor response to subsequent AMPH-challenge, anxiogenic behavior, sensorimotor gating deficits, short-term object memory deficits, and post mortem neurochemical abnormalities. In order to reverse these disruptions, we used haloperidol (HAL), a clinically used antipsychotic drug. We administered it continuously for 14 days using two doses; the higher dose (0.5 mg/kg/day) being therapeutically effective, and the lower dose (0.05 mg/kg/day) mainly blocking presynaptic auto-receptors. Higher dose HAL reversed the elevated locomotor response to AMPH and sensorimotor gating disruptions, yet lost its efficacy with time. Lower dose HAL was effective in reversing anxiogenic behavior, sensorimotor gating deficits, and memory deficits, yet it even exacerbated the locomotor response to AMPH. These results, as well as findings in the literature suggest that clinically used antipsychotic drugs require improvement. For this purpose, as a second experiment, we examined the mechanism of action of HAL. Previous findings suggest that the weak-base property of HAL enables it to be accumulated in acidic organelles, and released use-dependently. To understand the functional consequences of the accumulation process, we designed a HAL-analogue that lacks this accumulation property, and showed the absence of accumulation in vitro using the fluorescent dye LysoTracker Red. Later, by using the same AMPH exposure regimen, we tested the efficacy of the analogue compound in rats. We found that the HAL-analogue had no effect on the reversal of AMPH-induced behavioral deficits. These results suggest that the accumulation property of HAL is critical in mediating its antipsychotic effects. The requirement of accumulation may also explain the delayed antipsychotic efficacy in patients.

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