P2-014 ASSESSMENT OF DAILY ENERGY EXPENDITURE IN WOMEN WITH ALZHEIMER DISEASE LIVING IN NURSING HOME

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Background: The aim of the study was the assessment of energy expenditure in two groups of elderly women mainly the ones with Alzheimer disease living in nursing home and elderly women without any neurodegenerative disease living on their own. **Methods:** 27 women living in the nursing home with Alzheimer disease (ADW) and 50 free-living women (FLW) without neurodegenerative disease participated in the study. The average age of ADW participants was 79,5 ± 4,8 (66-90), and FLW was 71,6 ± 7,7 (60-87). The ADW had severe and very severe cognitive impairment (according to the Global Deterioration Scale for assessment of Primary Degenerative Dementia). All participants were physically active at last minimally (made more than 100 steps daily). Body Mass Index (BMI) was calculated. Daily Energy Expenditure (DEE), physical activity energy expenditure and number of steps, were collected using SenseWear Pro3 Armband (BodyMedia). The physical activity was defined as a sedentary life style for MET (Metabolic Equivalent) below 3,0; as the moderate physical activity for MET between 3,0 and 6,0. **Results:** The average BMI for the group of ADW was 22,6 ± 4,2kg/m2 (13,8-32,82kg/m2), and for the group of FLW was 28,9 ± 5,52kg/m2 (18,6-43,52kg/m2). Based on Armband measurement the average DEE of ADW was 1444 ± 242kcal (966-1949 kcal) and FLW was 2473 ± 562 (1433-3829kcal). The median of active energy expenditure of ADW was 22 kcal (0-358 kcal) and of FLW was 415kcal (0-2162kcal). In 9 person in ADW group and 2 person in FLW there was no detection of moderate physical activity. The median of number of steps in group of ADW was 365 steps/day (106-3199 steps/day) and of FLW was 7184 steps/day (169-25929 steps/day). All persons in ADW group and 20 persons (40%) in FLW group made daily less than 5000 steps which indicate predominantly sedentary life style. 16 persons (32%) in FLW group made more than 10000 steps daily, which indicate good level of physical activity. **Conclusions:** The daily energy expenditure and physical activity in the group of women with AD was much lower than in the group of free-living women. The lifestyle of the women with AD was predominantly sedentary

P2-015 SLEEP DISTURBANCE IN HOSPITALIZED PATIENTS WITH ALZHEIMER'S DISEASE

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Background: Sleep disturbance is commonly accompanied by patient with alzheimer's disease (AD). The aim of this study is to investigate the prevalence of sleep disturbance in patients with AD of geriatric hospital and relationship of between sleep disturbance and neuropsychiatric symptoms. **Methods:** The one hundred twenty patients with AD were included in this study. Seventy one patients had sleep disturbances. Patients with AD met National Institute of Neurological and Communicative Disorders and Strok-the Alzheimer's disease and Related Disorders Association (NINCDS-ADRDA) criteria. Sleep disturbance was assessed by Neuropsychological Inventory (NPI). The participants were assessed by Korean Version of Mini Mental State Exam, Clinical Dementia Rating, Short

Form of Samsung Dementia Questionnaires, and Burden interview. **Results:** There was no significant differences in the demographic factors and cognitive function between two groups. The AD with sleep disturbance had more neuropsychiatric symptoms. Apathy and irritability was significantly correlated with sleep disturbance. Sleep disturbance was mediated by apathy and irritability. **Conclusions:** Apathy and irritability played a role as a mediator of sleep disturbance in AD. We suggest that approaching and treating of apathy and irritability in patients with AD will help in sleep disturbances and also have a optimistic effect on deterioration of cognitive dysfunction.

P2-016 THE USEFULNESS OF FALL ASSESSMENT TOOLS TO IMPROVE THE QUALITY OF FALL PREVENTION CARE MANAGEMENT IN JAPANESE GERIATRIC CARE FACILITIES

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Background: In Japan, the elderly population has been increased in the number and more than 30% of total population will have over 65 years old until 2035. Almost all patients and residents suffer from dementia in geriatric care facilities, they repeat falls in care units. Recently care staffs of all geriatric facility use many kinds of fall assessments, it is said that these fall risk assessment tools aren't be effectively used and they have been not clarified whether these fall assessments are useful to fall prevention care or not. The aim of this study was to survey the usefulness of the risk assessment tools in fall prevention care management in Japanese geriatric care facilities. **Methods:** A questionnaire was distributed to a third of all Japanese geriatric care facilities (4,032). Responses were obtained from 1,343 (30%). Japanese geriatric facilities have 3 type, welfare institutions for the elderly, Health Services Facility for the elderly, long-term care facilities . The questionnaires were developed using Care Process of fall management Rask's reports (Rask, et al, 2007). **Results:** Compared the facilities using the fall assessment tools(case) with the facilities not using(control). Proportion of ''History of falls documented in the records'', ''professional guidance or orders from care provider'', ''treatment of fall patient '' ''analysis of the accident, the fact of the fall ''were significantly different between case and control. In all cases these fall assessment tolls are useful to improve the quality of fall prevention care management. Other the hand, each Facility type such as Health Services Facility, Long Term Facility and Welfare Institutions for the elderly, has characteristic problems in care management. Professional guidance is necessary to reduce fall in elderly facilities for lower level. On building up safety monitoring system and satellite center of fall which produce professional knowledge and skill are discussed. **Conclusions:** To improve the quality of fall prevention care management in Japanese geriatric care facilities is necessary to produce assessment system with professional guidance.

P2-017 COGNITIVE TESTING ON COMPUTER (C-TOC): DESIGNING A COMPUTERIZED TEST BATTERY FOR EVALUATION OF COGNITIVE IMPAIRMENT WITH USER AND COMMUNITY HEALTH PROFESSIONAL INPUT

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Background: Within our aging population there is a growing demand for dementia diagnostic services. A computer-based cognitive screening tool could facilitate triaging and service delivery in dementia clinics. It would be desirable for such a tool to inform on the severity and suspected etiology of

cognitive impairment, have a design optimized for cognitively impaired users, be appropriate in diverse cultural settings, and suited for web-based self-administration. Computerized batteries already in existence have not been designed to cover all features. This study describes the design process of Cognitive Testing on Computer (C-TOC), an innovative tool under development that is aimed at improving diagnostic service delivery in cognitive impairment and dementia. **Methods:** The prototype C-TOC-version1 (C-TOCv1) was created with reference to neuropsychological findings on Mild Cognitive Impairment, Alzheimer Disease (AD), and on the differentiation between AD and non-AD dementias. C-TOCv1 was evaluated and revised by a panel of clinicians with expertise in cognitive disorders. In ongoing studies, C-TOCv1 is further developed in a 3-cycle iterative design, with input from end users and from representatives of major ethnocultural groups. Individuals referred to a dementia clinic are consulted on the face validity of the tests and the usability of the computer interface. Representatives from ethnocultural groups are consulted on the validity of the tests within their own communities. **Results:** C-TOCv1 has been created as a mock-up of an entirely self-administered computerized test battery, which requires only use of the mouse. Test stimuli are presented visually. The aimed-for time to complete C-TOC is 30 minutes. C-TOCv1 covers the domains of episodic memory, orientation, attention, psychomotor speed, language, problem-solving and visuo-spatial construction. There are 12 tasks including Cued memory, Paired associates, Temporal orientation, Symbol digits, Trail making, Arithmetics, Sentence production and comprehension, Similarities, Pattern construction, Pattern completion, and Go-No-Go. **Conclusions:** C-TOC is a tool developed iteratively with input from its end users and including ethnocultural considerations. By design C-TOC should have broad applicability, both for the office and the web. The uptake of C-TOC in dementia/memory clinics could in the future reduce waiting times, optimize resource utilization, guide follow-up and help to provide diagnostic services for those living in remote locations.

P2-018

APATHY ASSESSMENT USING 7-DAYS AMBULATORY ACTIGRAPHY IN ALZHEIMER'S DISEASE

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Background: Apathy is the most frequent neuropsychiatric symptom across all stages of Alzheimer disease (AD). Studies using the Neuropsychiatric Inventory (NPI) show that apathy is present in up to 70% of individuals with AD. One of the main difficulties in assessing apathy and other neuropsychiatric symptoms is the absence of a reliable objective measure. Usually, the assessment is subjective structured interview-based, using input from either the caregiver and/or the patient. The aim of our study was to assess the relationship between apathy and locomotor activity in Alzheimer's disease (AD), using ambulatory actigraphy. **Methods:** 93 AD outpatients have worn a wrist-actigraph (Motionlogger®) during 7 consecutive 24-hour periods. Patients were divided into two subgroups according to the apathy sub score of the NPI. Patients with NPI-apathy sub score >4 were considered apathetic. **Results:** AD patients with apathy (n = 36; age = 78,2 ± 5,3; MMSE = 20,8 ± 5,0) had significantly lower daytime mean motor activity (dMMA) (p < 0,01) than AD patients without apathy (n = 57; age = 75,5 ± 9,4; MMSE = 21,9 ± 4,1) while nighttime mean motor activity (nMMA) didn't significantly differ between the two subgroups. **Conclusions:** Ambulatory actigraphy could be a simple technique to assess apathy objectively as part of routine assessment of AD patients.

P2-019

A COMPARISON OF DIAGNOSTIC ACCURACIES FOR SCREENING TOOLS IN DIAGNOSIS DELIRIUM IN OLDER ADULTS

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Background: Under-recognition of delirium is very common in clinical practice and attributed in part to the complexity of diagnostic criteria. Simplified diagnostic tools are readily available but have not been validated in Thai context. We aimed to determine diagnostic accuracies of simplified diagnostic tools, namely Confusion Assessment Method (CAM), Thai Mental State Examination (TMSE) and counting backward(CB-20) against the reference standard; DSM IV criteria for delirium. **Methods:** We conducted a cross-sectional study recruiting all consecutive patients aged 70 years old or older who admitted druing the study period to general medical wards at Siriraj Hospital, a university hospital in Thailand. Two independent assessments were performed in each patient without knowing evaluation result from another parallel assessment. DSM IV criteria were applied by a geriatrician who evaluated the patients within the first 24 hour of admission. Another researcher performed an independent assessment using CAM, TMSE(a cognitive screening tool with possible score from 0-30) and counting backward (CB-20: accuracy in citing number from 20 to 1). Diagnostic accuracies of tests were compared against the reference test; DSM IV. **Results:** Of 225 patients enrolled, 518 episodes of paired-assessment were performed. The CAM demonstrated sensitivity of 85% (95%CI = 77-90), specificity of 98% (95%CI = 96-99), PPV of 90 %and NPV of 96%. Considering CB-20; sensitivity, specificity, PPV and NPV were 84% (95%CI = 75-90), 90% (95%CI = 87-93), 70% and 95%, respectively. With regard to TMSE; a ROC curve was applied providing AUC = 0.94 (95%CI = 0.91-0.96). At cut-off point of 20, TMSE showed sensitivity and specificity of 92% (95%CI = 0.85-0.96) and 79% (95%CI = 0.74-0.84). Positive and negative likelihood ratio for CAM, CB-20 and TMSE-20 were 35/0.16, 8.75/0.18 and 4.33/0.10, respectively. **Conclusions:** Three simplified tools for diagnosing delirium applied in Thai older patients showed good to excellent diagnostic accuracies. CAM, the most comprehensive tool among three methods, provides the best diagnostic accuracy. Counting backward (CB-20), an easy-to-use tool requiring short assessing time, provides reasonably good accuracy and could be considered as a quick screening tool for detecting delirium in older patients.

P2-020

GERONTOLOGIC RESEARCH ALGORITHMS AND STATISTICAL PROGRAMS (GRASP): A WEB-BASED BIOSTATISTICAL REPOSITORY FOR GERONTOLOGICAL RESEARCHERS

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Background: Gerontologic researchers face great challenges in applying appropriate study design and analytic approaches to address multifactorial etiologies of geriatric health outcomes, especially in the area of cognitive decline and dementia that are characterized by many analytic challenges including informative missingness due to drop-out and death and comorbidities that confound associations to name a few. The objective of this abstract is to introduce a free, widely accessible, web-based resource and platform for gerontologic researchers and quantitative methodologists. **Methods:** A web-based resource created and maintenanced by the joint efforts of Yale, Duke and Wake Forest Universities Older Americans Independence Centers with funding from the NIA. **Results:** GRASP (http://grasp.med.yale.edu) provides sample computer programs, data structures, analytic results, with links to external resources, such as reference articles, research instruments. User contributions are welcomed. All the examples are based on the research projects the contributors were involved in and represent their critical thinking to applying sophisticated statistical theory to solving real-word research problems. Examples include controlling the overall error rate in multiple outcomes studies, missing data methods including imputation strategies for intermittent missing over repeated measures, temporal-spatial models, state transition models and floor and ceiling effects. Furthermore, to analyze geriatric syndromes such as cognitive impairment, functional disability and affective disorders examples of group-based trajectory model, structural equation modeling, and latent-growth models are included. Furthermore, extensive genetic resources for exploring conditions that have later life onset with potential genetic contributions are available for both teaching and