



<b>Title</b>	<b>Effect of aging on prose recall</b>
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# Abstracts Presented at the Twenty-Fourth Annual International Neuropsychological Society Mid-Year Conference

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## THURSDAY MORNING, JULY 5, 2001

Poster Session 1/9:00 a.m.–5:00 p.m.

### AGING, DEMENTIA, MEMORY AND EXECUTIVE FUNCTION, TRAUMATIC BRAIN INJURY

**A. MATTA, F.J. CAROD-ARTAL, G. MATTA, A.P. VARGAS, & R. SILVA.** *Alzheimer's Disease Associated With Diffuse Encephalic Calcifications and a Frontal Meningeoma.*

*Background:* Alzheimer's disease (AD) is the most common cause of dementia. Brain calcifications, as well as intracranial neoplasms, are also related with cognitive disorders. The association of these 3 conditions is very rare and to our knowledge not described yet. *Objective:* To describe a case of AD with a typical presentation associated with diffuse encephalic calcifications and a left frontal lobe meningeoma. *Patient and Methods:* A 79-year-old woman is reported. Diagnosis of AD was based on neurological examination, psychometric tests, neuroimaging findings, and exclusion of secondary dementia. She developed seizures at 9-year evolution of disease. A low thyroid stimulating hormone (TSH) level was detected and attributed to chronic use of amiodarone. Mini-Mental State Examination score was 7. Impaired verbal fluency and span digit test performance was observed. Severe perseveration and ecolalia were present. CT scan showed calcifications addressing cerebellum, basal ganglia, subcortical white matter, and occipital cortex. A meningeoma with left frontal lobe compression was also seen. *Conclusion:* Cognitive decline in AD may be in this case aggravated by simultaneous presence of other conditions such as diffuse encephalic calcifications and a frontal lobe meningeoma.

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**M. MELO, F.J. CAROD-ARTAL, M.S.M. MEDEIROS, E.C. DIAS, & C. BRENNER.** *Thalamic Dementia Resulting From a Bilateral Paramedian Thalamic Infarction.*

*Background:* Bilateral paramedian thalamic infarction is an uncommon stroke due to occlusion of perforating thalamic arteries. Neurophtalmologic disturbance, Korsakoff syndrome and sleep disturbances have been described in that stroke subtype as a part of "top of the basilar" syndrome. *Objective:* To describe neurological and neuropsychological disturbances in a man with thalamic dementia, an uncommon form of vascular dementia. *Methods:* We report a patient affected by thalamic dementia resulting from a bilateral paramedian thalamic infarct presenting as a "top of the basilar" syndrome and describe neurological, neuropsychological, and neuroradiological findings. *Results:* A 63-year-old white man developed an acute coma. Ten days later he was alert but showed an important cognitive change characterized by aggressive behavior, confabulation, perseveration, depressive mood, short-term memory disturbance, inattention,

lack of energy, and dysphasic thalamic syndrome with low fluency. Neurologic symptoms included hypersomnolence. Associated neurophtalmologic disturbances were vertical gaze palsy, convergence paralysis, and bilateral miotic pupil. A cranial magnetic resonance imaging (MRI) revealed bilateral areas of signal prolongation on T1 and T2 weighted images on the paramedian aspect of the thalami. *Conclusions:* Bilateral paramedian thalamic infarction is an uncommon cause of vascular dementia included in the "top of the basilar" syndrome.

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**M.C. DEL NEGRO, F.J. CAROD-ARTAL, & C. MEIRELLES.** *Vascular Dementia and Vertebral Kinking: A Case Report.*

*Background:* It has been postulated that compressive vertebral kinking could produce reactive arterial hypertension with secondary leuko-arayosis and subcortical vascular dementia. *Patient and Methods:* We report a 55-year-old woman with subcortical vascular dementia secondary to compressive vertebral kinking and reactive arterial hypertension. *Results:* Patient presented with a 10-year progressive gait difficulty, urinary urgency, apathy and emotional lability. She had difficulty dealing with money and learning new information. She was able to dress, eat, and take care of herself. Vascular risk factor identified with arterial hypertension. At exam, she was time and place oriented, apathetic, with poor spontaneous fluency, recognized left and right fields, understood commands, copied act sequences, could tell her birth date, but retrieval was affected. She was illiterate. Her gait was broad based, with short steps. Left hemiparesis and bilateral Babinski sign were observed. Neither abnormal movements nor sensory deficits were observed. A cerebral MRI showed cerebral and cerebellar atrophy, laminar leuko-arayosis, bilateral semiovale center, bilateral thalamic and pontine lacunar infarcts. Cerebral MRI and MR angiography showed right vertebral artery ectasis and kinking with important compression of medulla. A Doppler study of carotid and vertebral arteries revealed diffuse atherosclerotic disease. Laboratory studies showed renal incipient dysfunction. The patient received antihypertensive therapy and tricyclic antidepressant. *Conclusion:* Vertebral and basilar compressive kinking can be associated to reactive arterial hypertension leading to secondary leuko-arayosis, lacunar infarct, and subcortical vascular dementia. *Correspondence:* Maria Cristina Del Negro, Sarah Hospital, SMHS Quadra 301 Bloco B, Entrada B, Recursos Humanos, Brasília DF 70.334-900, Brazil.

**K. YUEN & T.M.C. LEE.** *Effect of Aging on Prose Recall.*

The current study is part of a pilot project investigating the effect of aging on prose memory by comparing the performance on prose recall between 1st-year university undergraduates ( $n = 22$ ,  $M$  age = 19.6) and normal

healthy elderly ( $n = 12$ ,  $M$  age = 76.3), both of whom were Cantonese-speaking Chinese. The mean years of education received were 4.8 and 14.0 for the elderly and university participants respectively. Instrument used was a short Chinese prose passage consisting of 119 words covering 35 idea units. The prose passage was read to the participants and verbatim immediate recall was recorded. Multiple scores including (1) recall accuracy, (2) temporal sequence accuracy, (3) within-context distortions, and (4) out-of-context distortions were obtained. Initial analysis showed that our elderly participants were significantly worse ( $p < .05$ ) than university participants in terms of recall accuracy, temporal sequence accuracy, and out of context distortions. Taken the differences in education level into account, the current data support the view that prose memory declines with increasing age as other aspects of memory do and exemplify the need for a comprehensive approach to assessing prose memory by focusing on both recall accuracy and processing efficiency.

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**L. TOTO, P. HEYN, F. ROHTER, F. BASTOS, & A. THOMPSON. Effects of Exercise in Alzheimer's Disease.**

The importance of exercise for the overall health of human beings has gained significant recognition during the last decade. Recently, medications that reversibly inhibit the enzyme acetylcholinesterase are commonly being used in mild to moderate Alzheimer's disease (AD). *Objective:* Compare effect of exercise and medication and just the use of medication in patients with AD. *Design:* All the 20 patients with mild to moderate AD (MMSE > 15) were given once-a-day treatment with medication during 30 weeks. Ten patients were randomized to an exercise program during 12 weeks. *Results:* The mean change from baseline MMSE score of the exercise treated group was significantly improved *versus* just medication group. Statistical significance was achieved in Weeks 8–12 and at the end point for both treatment group. *Discussion and Conclusion:* Exercise enhances respiration and utilization of oxygen in the body. The brain responds to exercise by increasing lipid peroxidation in different brain regions. Exercise training shows in brainstem and corpus striatum an increased enzymatic activity and induced antioxidant enzymes. Aerobic exercise increases the density of capillaries on the brain providing increased blood flow and greater protection against loss of brain cells. Exercise possibly increases adenosine that activates antioxidant enzymes that scavengers reactive oxygen products protecting the brain against oxidative stress.

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**P. HEYN. Innovative Rehabilitation Intervention: Managing Alzheimer's Disease Through Exercise Therapy.**

The integration of exercise into standard care practices for individuals with AD appear relevant and feasible. Participation in an exercise program has been shown to have a positive effect on the maintenance of physical abilities of strength, flexibility, and balance and life satisfaction in older adults with AD. Some studies indicate that one way to achieve maximum function for the patient with Alzheimer's disease and dementia is a supervised exercise program. Although some studies show moderate to non-significant results on the effects of an exercise program in AD patients, these views may not be realistic when reviewing the possible physical change in older adults. The physical and psychological variables should be taken in thoughtful considerations since psychological disturbances impair the capacity to perform physical abilities. Most of the studies agree with the active involvement and participation of the caregiver in the program. Its involvement will provide positive health benefits for both: the caregiver and the AD patient. The purpose of this presentation is to demonstrate how to design an exercise therapy program for mentally impaired adults with Alzheimer's disease to improve their psychological and physical abilities. This program is designed to provide time for enjoyment through exercise. The exercises involved in this program are specifically designed for Alzheimer's Dementia type individuals and do not involve anything which could be considered strenuous or dangerous. All the physical assessments are noninvasive procedures. *Objectives:* Participants will

(1) develop an awareness for the major components of wellness for dementia; (2) identify the physiological and practical benefits of exercise; (3) understand the therapeutic value of formal exercise program for the cognitive impaired older adult; (4) analyze the key assessment that we can use as markers to follow our risk factor progressions; (5) identify the intervention strategies that will change lifestyle; (6) experience the cultural support that will nurture adherence and compliance to an exercise program; (7) develop exercise routines for the cognitive impaired older adult; (8) adapt and modify exercises for special conditions; (9) decrease cognitive impairment through exercise application; (10) develop proper, safe, and fun exercise to music; (11) awareness of proper body posture, movement, and technique; ultimately, participants will be clear of how exercise can play an important role in maintaining independent and healthier living for the aging citizens.

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**A. BASTOS, B.P.D. DAMASCENO, & I.V. KOCH. The Narrative Discourse in Alzheimer's Disease.**

*Objective:* To describe and analyze the narrative discourse of patients with Alzheimer's disease (AD). *Methods:* Multiple single case study involving 5 patients (2 men, 3 women; age: 71–83 years, education: 2–16 years) with probable AD of mild to moderate degree, and 5 normal controls matched by age, gender, and education. AD diagnosis was based on DSM–IV, CAMDEX and NINCDS–ADRDA criteria. Neuropsychological evaluation covered: (1) attention and concentration (vigilance test of Strub & Black, 1977), (2) visual perception (subtests of Luria's battery), (3) memory (WMS–R), (4) language (Boston naming test, WAIS–R vocabulary, and verbal fluency–category: animals). Narrative production tasks included (1) an account of a personal experience; (2) narrative interpretation of thematic pictures (sequential: “*The Cowboy Story*”; and nonsequential: “*The Cookie Theft*”). *Results:* There was no significant difference between AD patients and control subjects in the vocabulary and verbal fluency tests, but AD patients scored lower in naming ( $p < .04$ ), vigilance ( $p < .02$ ), visual perception ( $p < .003$ ) and recall of stories (WMS–R logical memory test;  $p < .0001$ ). In the narrative tasks, AD patients gave fragmentary descriptions of the figures or did not deviate from the story situation. *Conclusion:* In our tasks, AD patients narrative difficulties did not result from deficits of vocabulary or verbal fluency, being more related to deficits of attention/concentration, memory and visual perception. Apraxic and visuospatial deficits seemed to impede these patients from grasping iconographic macrostructures needed for conversion of visual images into a narrative text. Failure of discursive memory was also relevant in this regard.

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**N. STROOBANT & G. VINGERHOETS. Reduced Blood Flow Velocity Before Cardiac Surgery: A Functional TCD Study.**

Cognitively induced cerebral blood flow velocity (BFV) changes in the middle cerebral artery (MCA) were preoperatively measured by functional transcranial Doppler ultrasonography (fTCD) in 20 right-handed candidates for elective coronary artery bypass surgery (CABG) that did not suffer from carotid artery stenosis. These simultaneous bilateral TCD monitorings were compared with the performance of 20 right-handed age- and gender-matched healthy controls. Multivariate analysis of variance showed a significantly reduced baseline velocity ( $p < .05$ ), activation velocity ( $p < .005$ ) and percentage change in BFV in the surgical candidates ( $p < .001$ ). *Post-hoc* analyses revealed a reduced relative BFV change for all verbal tasks (a reading task, a construction of sentences task, and a word fluency task) in the surgical candidates. No significant effect on relative BFV change was found for the visuospatial tasks (a visual searching task and a 3D puzzle). Previous fTCD research with these tasks in normal subjects revealed a left hemispheric BFV lateralization for the verbal tasks, and a right hemispheric BFV lateralization for the visuospatial tasks. The reduced cerebrovascular reactivity during verbal tasks is in agreement with the preferential lodging of cardiogenic emboli