

# Memory Process in Demented and Non-Demented Elderly Patients

A Mani<sup>1, 2\*</sup>, T Hashemi<sup>1</sup>, H Haghshenas<sup>2</sup>, MT Garouci Farshi<sup>1</sup>, AH Shariat<sup>3</sup>

<sup>1</sup>Department of Psychology, Tabriz University, Tabriz, <sup>2</sup>Department of Psychiatry, <sup>3</sup>Department of Neurology, Shiraz University of Medical Science, Shiraz, Iran

## Abstract

**Background:** Dementia is characterized by progressive memory loss and other cognitive impairments. Memory impairments are apparent on tasks that require learning and retention of verbal or non-verbal information. Demented patients present severe impairments on recognition and recalling tasks. They have severe deficits in transferring information into a long-term storage system. The present study investigated any difference between various memory processes in different reproduction phases contribute to discrimination between demented and non-demented elderly patients.

**Methods:** Thirty one demented and 25 non-demented elderly patients were selected according to inclusion criteria; all of them were visited by a physician completing the Mini Mental Status Examination (MMSE) and California Verbal Learning Test-Persian version (CVLT-P).

**Results:** Although demented and non-demented elderly subjects had no difference in relation to age and education, differences on clinical variables were significant and demented patients showed lower means than non-demented ones. A discriminate function analysis showed that CVLT-P had the ability to differentiate between demented and non-demented elderly patients and could correctly classify 94.3% of demented and non-demented older adults.

**Conclusion:** Findings suggest that CVLT-P could discriminate satisfaction between these two groups and according to subscales, learning slope had the highest discrimination coefficient. So demented patients had more deficits in hippocampus causing failure of learning.

**Keywords:** Neuropsychology; Memory; dementia; CVLT; Iran

## Introduction

Dementia is characterized by progressive memory loss and other cognitive impairments, e.g. aphasia, apraxia and personality changes. Despite the global nature of the cognitive dysfunction in dementia, memory disorder is clearly the most prevalent and prominent feature of early stages of disease.<sup>1</sup>

In the early stages of dementia, memory difficulties are apparent when dementia patients are confronted with everyday tasks requiring episodic memory.<sup>2</sup> Memory impairments are apparent on tasks that

require learning and retention of verbal or non-verbal information. Demented patients present severe impairments on recognition and recall tasks. They have severe deficits in transferring information into a long-term storage system. Delis *et al.* (1991)<sup>3</sup> reported that this anterograde amnesia is not primarily due to difficulties in retrieval mechanisms but instead that it reflects a defect at the level of consolidation.<sup>3</sup> This defect may be mediated by damage to hippocampus<sup>4</sup> and entorhinal cortex and by neurotransmitter changes in cholinergic system.<sup>5</sup> Therefore, the differences in memory performance between dementia and non-demented elderly patients are frequently investigated.

A review of experimental studies on the specific memory disorders in dementia (Alzheimer disease, in particular) shows that in addition to episodic memory problems, there are also major semantic memory

\*Correspondence: Arash Mani, PhD, Assistant Professor of Cognitive Neuroscience, Department of Psychiatry, Shiraz University of Medical Sciences, Shiraz, Iran. Tel: +98-711-6279319, Fax: +98-711-6279319, e-mail: [mania@sums.ac.ir](mailto:mania@sums.ac.ir)  
Received: November 10, 2009 Accepted: April 26, 2010