

Cognitive outcome of traumatic brain injury in elderly patients

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Abstract

Objective: To assess the cognitive outcome of traumatic brain injury in elderly patients.

Design: a prospective study.

Methods this study was conducted on 50 elderly patients exposed to TBI in Sohag University hospital and 50 patients exposed to TBI but less than 65 years used as a control.

Introduction Traumatic brain injury (TBI) is a significant problem in older adults, and is associated with changes in the brain that affect the cognition (*Sapoznik et al 2006*)

Results During the study period, 50 elderly patients with TBI were followed up for cognitive outcome, 12 patients (24%) were associated with cognitive deficits.

Conclusion: TBI in elderly patients is associated with cognitive deficits post injury.

Key words: traumatic brain injury, elderly patients, cognitive outcome, geriatric trauma, prognosis.

Introduction

Trauma literature usually defines "elderly" as more than 65 years of age. (*Patel HC, et al 2011*)

Structural changes in the brain include neuronal reduction with a reduced volume of the frontal and medial temporal lobes resulting in difficulties with episodic memory and reasoning, also reduced neuronal plasticity leaves older adults with an exaggerated risk of cognitive decline (*Kempermann et al., 2002*)

Senathi-Raja et al. (2010) reported that elderly patients with traumatic brain injury were suffering of emotional and cognitive changes including slowness, memory loss and mood changes compared to those not exposed to TBI

Aim of the study:

The aim of this study is to assess cognitive outcome after traumatic brain injury in elderly patients above 65 years.

Patient and methods: A randomized study was conducted on 50 elderly patients admitted to Sohag University hospital.

Inclusion criteria: 50 patients with traumatic brain injury over 65 years old.

Administrative design:

- The study was approved by ethical committee of Sohag Faculty of Medicine.
- Personal communications with responsible administrative authorities and written consent was obtained.

The study includes:

1) Clinical assessment:

- Thorough medical history taking, General examination, Neurological examination.

2) Investigations:

- Laboratory investigations (CBC, PT, PC, LFT and KFT).
- Head CT at admission time, if any deterioration occurs and on discharge.

• Brain MRI, MRA and MRV if indicated.

3) Management:

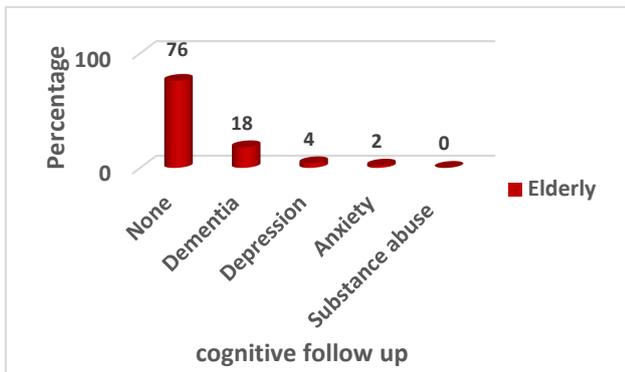
Patients were managed conservatively or surgically under general or local anesthesia. According to their type of brain injury.

4) Follow up:

All patients were followed up clinically during hospital stay and for one month after discharge and assessing the conscious level and presence or absence of cognitive deficit and radiographic investigations by Computed tomography and MRI if indicated.

Results: cognitive outcome in the study group in 38 patients (76%) were found free of cognitive deficits while 12 patients (24%) had cognitive deficit, from them 9 patients (18%) had dementia, 2 patients (4%) had depression and 1 patient (2%) had anxiety disorder.

Figure (1) shows cognitive follow-up in elderly patients exposed to TBI.



Discussion

As regard cognitive outcome 50 elderly patients were examined 38 patients (76%) did not have cognitive deficits while 12 patients (24%) had cognitive deficit of them 9 patients (18%) had dementia, 2 patients (4%) had depression and 1 patient (2%) had anxiety disorder which matches the results of a study performed by Wheelan-Goodinson et al (2010) comparing cognitive outcomes in patients exposed to TBI in one hundred patients (19-74 years) assessed at 6 months

5) Statistical analysis:

Data analyzed using STATA intercooled version 12.1. Quantitative data represented as mean, standard deviation, median and range. As the data was not normally Mann-Whitney test was used to compare two groups. Qualitative data was presented as number and percentage and compared using either Chi square test or Fisher exact test. Graphs were produced by using Excel or STATA program. P value was considered significant if it was less than 0.05.

Table (1) shows cognitive follow-up in elderly patients exposed to TBI.

Variable	Elderly N=50	P value
Psychological follow-up		
None	38 (76.00%)	<0.0001
Dementia	9 (18.00%)	
Depression	2 (4.00%)	
Anxiety	1 (2.00%)	
Substance abuse	0	

to five years post-injury for anxiety, depressive and substance abuse disorders.

The authors found that those over 60 years had lower rates of anxiety disorder and drug abuse and higher rates of dementia and depression.

Limitations

Many studies examining outcomes among TBI patients simply exclude participants that died during hospitalization or at follow-up.

