Effects of Neurosurgical Treatment and Severity of Head Injury on Cognitive Functioning, General Health and Incidence of Mental Disorders in Patients with Traumatic Brain Injury

Sajjad Rezaei, 1, * Karim Asgari, 2 Shahrokh Yousefzadeh, 3 Heshmat-Allah Moosavi, 4 and Ehsan Kazemnejad 3

1 Guilan Road Trauma Research Center, Department of Psychology, University of Isfahan, Isfahan, IR Iran
2 Department of Psychology, University of Isfahan, Isfahan, IR Iran
3 Rasht, IR Iran
4 Department of Psychiatry, Guilan University of Medical Sciences, Rasht, IR Iran
*Corresponding author: Sajjad Rezaei, Guilan Road Trauma Research Center, Department of Psychology, University of Isfahan, Isfahan, IR Iran. Tel.: +98-9113390785, Fax: +98-1313238373, E-mail: Rezaei_psy@hotmail.com.

Archives of Trauma Research. 2012 October; 1(3): 93-100., DOI: 10.5812/atrr.6546

Article Type: Research Article; Received: Aug 8, 2012; Revised: Aug 14, 2012; Accepted: Sep 5, 2012; epub: Oct 14, 2012; ppub: Oct 14, 2012

Running Title: Effects of Neurosurgical Treatment and Severity of Head Injury

Abstract

Background: Neurosurgical treatment and the severity of head injury (HI) can have remarkable effect on patients’ neuropsychiatric outcomes.

Objectives: This research aimed to study the effect of these factors on cognitive functioning, general health and incidence of mental disorders in patients with a traumatic brain injury (TBI).

Patients and Methods: In this descriptive, longitudinal study, 206 TBI patients entered the study by consecutive sampling; they were then compared according to neurosurgery status and severity of their HI. Both groups underwent neurosurgical and psychological examinations. The mini mental state examination (MMSE) and general health questionnaire–28 items (GHQ-28) were administered to the study participants. At follow-up, four months later, the groups underwent a structured clinical interview by a psychiatrist based on the diagnostic and statistical manual of mental disorders, fourth edition (DSM-IV) diagnostic criteria regarding the presence of mental disorders.

Results: Analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA) were performed and adjusted for the effect of confounding variables (age, gender, Glasgow outcome scale (GOS), and level of education). The severity of HI had the most significant effect for the following variables; cognitive functioning and physical symptoms ($P < 0.05$). The effect of the neurosurgical treatment factor was not significant; however, the interaction effect of the two variables on social dysfunction, and total score of...
the GHQ-28 questionnaire appeared to be significant \( P < 0.05 \). Fisher's exact test indicated that after a four month follow-up period, no significant differences were seen between the two groups (with or without neurosurgery) in the incidence of mental disorders, while \( x^2 \) Test showed that having a more severe HI is significantly correlated with the incidence of mental disorders \( P < 0.01 \).

**Conclusions:** The implications of this study should be discussed with an emphasis on negative, effective factors on the cognitive – behavioral and neuropsychiatric outcomes of a TBI.

**Keywords:** Brain Injury; Neurosurgery; Cognitive Aspect; Mental Health