The role of early posttraumatic neuropsychological outcomes in the appearance of latter psychiatric disorders in adults with brain trauma

Shahrokh Yousefzadeh-Chabok, Sara Ramezani, Zoheir Reihanian, Mohammad Safaei, Babak Alijani, Naser Amini

Department of Neurosurgery, Guilan Road Trauma Research Center, Guilan University of Medical Sciences,
2Department of Neurosurgery, Guilan University of Medical Sciences, Rasht, Guilan,
1Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

ABSTRACT

Background: The objective was to determine the predictors of posttraumatic psychiatric disorders (PTPD) during the first 6 months following traumatic brain injury (TBI) focusing on neuro imaging, clinical and neuropsychological appraisements during acute and discharge phase of TBI.

Materials and Methods: We designed a prospective, longitudinal study in which 150 eligible TBI patients were entered. Post resuscitation brain injury severity and discharged functional outcome were evaluated by standard clinical scales. First neuroimaging was done at a maximum of 24 h after head trauma. Early posttraumatic (PT) neuropsychological outcomes were assessed using Persian
neuropsychological tasks at discharge. The standardized psychiatric assessments were carefully implemented 6 months post injury. A total of 133 patients returned for follow-up assessment at 6 months. They were divided into two groups according to the presence of PTPD.

**Results:** Apparently, aggression was the most prevalent type of PTPD (31.48%). There was no significant difference between groups regarding functional outcome at discharge. Diffuse axonal injury (12.96%) and hemorrhages (40.74%) within the cortex (42.59%) and sub cortex (33.33) significantly occurred more prevalent in PTPD group than non-PTPD ones. Primary post resuscitation TBI severity, early PT lingual deficit and sub cortical lesion on first scan were able to predict PTPD at 6 months follow-up.

**Conclusion:** Almost certainly, the expansive dissociation risk of cortical and sub cortical pathways related to linguistic deficits due to severe intracranial lesions over a period of time can augment possibility of subsequent conscious cognitive emotional processing deficit, which probably contributes to latter PTPD. Hence, early combined therapeutic supplies including neuroprotective pharmacotherapy and neuro feedback for neural function reorganization can dampen the lesion expansion and latter PTPD.

**Key words:** Brain injury severity, brain lesions, neuroimaging, posttraumatic lingual deficits