

Functional Impact of Depression on Traumatic Brain Injury Outcomes

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Background

The annual incidence of traumatic brain injury (TBI) in the United States is 1.5 million or 3% (Borlongan et al., 2013). In 2005-2006, the incidence of depression in the United States was 5.4% for ages 12 and older (Center for Disease Control, 2012). Chaudhury et al. (2013) meta-analysis revealed a 30% prevalence rate of depression in TBI across multiple time points with 33% prevalence >12 months since injury across samples. Given this prevalence, the current study focused on the functional impact of differing levels of depression on TBI post-hospital rehabilitation outcome.

Methods

Subjects: The total sample was 903 participants with admission to discharge measures completed; 435 participants met inclusion criteria for TBI receiving active post-hospital neurorehabilitation care. Most of the participants were male (82%) vs. female (18%). Average age was 40 years. Average length of stay was 5.8 months with an average of 34.06 months duration from onset of injury to admission for post-hospital care.

Measure: The Mayo Portland Adaptability Inventory-4 (MPAI-4) was completed within 30 days of admission and at discharge. Scores were converted to T-scores for comparisons. The MPAI depression ratings: severe=11% (N=46); moderate=24% (N=105); mild=29% (N=125); and no depression = 36% (N=159).

Results

A Multivariate Analysis of Variance (MANOVA) revealed a main effect for depression, Wilkes' Lambda=.88, $F(12,1124)=4.6$, $p<.001$, partial $\eta^2=.042$. Power to detect the effect was 1.000. Post-hoc analysis determined the depression groups differed on the MPAI measures at admission and discharge ($p<.01$). The mean differences for Abilities were significant when comparing the severely depressed group to mildly depressed and non-depression groups ($p<.01$). The moderately depressed group differed significantly from the non-depressed group ($p<.01$), but not from the severe or mildly depressed groups. Those in the non-depressed group differed from each of the depressed groups ($p<.01$) for Abilities. The mean differences for Participation were significant when comparing the severely depressed group to other depressed and non-depressed groups ($p<.01$). The moderately depressed group differed significantly from the severe and non-depressed groups ($p<.01$), but did not approach significance with the mildly depressed group. Those in the non-depressed group differed from each of the depressed groups ($p<.01$) for Participation.

Discussion

Consistent with Chaudhury et al. (2013), this study found a high prevalence of depression (34%) among a group of 435 TBI adults. Those that exhibited the greatest depressive symptomatology demonstrated the poorest outcomes on measures of cognitive functioning and overall independence in the home and community. Therefore, comprehensive assessment and treatment of depression should be an integral component of post hospital rehabilitation programming.

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