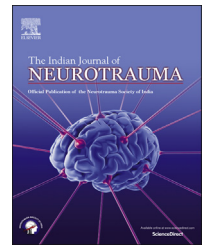


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## Letter to the Editor

# Does India need research in field of post traumatic brain injury addiction?



Dear Sir

Traumatic brain injury (TBI) is a major public health issue in India, resulting in various post-traumatic sequelae in majority of population. Following TBI brain undergoes complex pathophysiological process due to force impact. This causes imbalance in neurometabolic cascade and neurotransmitters of affected brain regions, responsible for various consequences like neurocognitive deficits, somatic, behavioral disturbances and drug addiction.<sup>1–4</sup>

The research in post TBI addiction is becoming an area of interest. Its development went in a way as on imaging 'ventricular dilatation and gray matter shrinkage' are the common findings in both TBI and addiction disorder. So, researchers initially suspected a correlation between TBI and addiction. Later a positive correlation was found in the way addiction makes people prone for TBI. Neuropsychological studies also showed that, addiction disorder causes decrease in judgment and increase in impulsivity, which makes subject prone for TBI. Afterward a thought was raised in vice versa that TBI makes people prone for substance abuse.<sup>5–7</sup>

In post-TBI there can be increase in chances of developing addiction disorder and relapse in previously addicted.<sup>5</sup> Studies along the time suggested that post-TBI subjects are initially prone for developing addiction and relapse but with time it decreases. Recent study in 2013, done on basis of data from Active-Duty U.S. Air Force Airmen after wars in Afghanistan and Iraq, there is significantly elevated hazards of alcohol reliance for mild TBI, which is mostly observed during the early period which is between 1 and 30 days and consistently decreases over time. Risk of addiction towards other abusing substances like nicotine, opioid etc. also increase but it is less as compared to alcohol.<sup>6</sup> Perhaps this was the principal study done till date, considering this hypothesis. Imaging studies on volumetric had also been done, showing significant gray matter shrinkage in prefrontal area and others following TBI, suggesting of subjects prone for developing addiction.<sup>7</sup> One reason might also be due to increased use of analgesics during early phase of TBI acting as a confounding factor for increased chances of addiction.<sup>6</sup>

Our nation with 1 billion populations has estimated to have 7.5 crore drug addicts more common in middle age group.<sup>8</sup> Perhaps, till date no study is done in India, which mainly focuses on how this post-TBI subjects slip into drug abusing

behaviors. India being a developing country is facing addiction as one of the rising problem. Similarly, TBI is also a major public health issue. The economic losses due to both are phenomenal, though unmeasured. The majority of TBI patients do not have proper follow-up and rehabilitation services. In such a case, we don't have any idea about what is the contribution of TBI that is increasing the addiction potential of people and generating other socio-economic problems. From a study post TBI addiction contributed to 23%.<sup>6</sup> Though it is a major public health issue we lack the quality research in this field. Yes, we need extensive and in-depth study in several dimensions that is helpful in revealing the enormity of the problem. If for example, in imaging, if certain parameters are found unique to post TBI addict and any specific neuropsychological research in this regard, could also help in giving prior red signals for increased susceptibility towards developing addiction.

The valuable data on TBI addiction from our population will be helpful, possibly by keeping critical follow-up of susceptible post TBI patients. The preventive strategies can include, inter departmental co-ordination, taking motivational counselings, social-reintegration, educating regarding the risk and building consciousness.

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Mrunal S. Bandawar  
Ashok Munivenkatappa\*

Department of Clinical Neurosciences, National Institute of Mental Health and Neuro Sciences, Bangalore, Karnataka 560029, India

\*Corresponding author. Department of Neurosurgery (Traumatology), National Institute of Mental Health and

Neuro Sciences, Bangalore 560029, Karnataka, India. Tel.: +91 9844250897, +91 080 26995346.

E-mail address: [ashokmphdns@gmail.com](mailto:ashokmphdns@gmail.com)  
(A. Munivenkatappa)

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