**INTRODUCTION**

Patients of mild traumatic brain injury (mTBI) are usually discharged from the ER without the advice to follow-up with a specialist in absence of overt physical symptoms. MTBI can cause a wide range of longer term functional and cognitive deficits that can significantly affect the quality of life.

According to recently published data by the CDC, approximately 40% of mTBI patients have at least one unmet need / with problem even after one year of injury. The top three unmet needs were: improving memory and problem solving, managing stress and emotional upsets, and improving vocational skills at pre-injury level.

All the above needs are related to the neurocognitive impairment. We, as a specialized out-patients center for mild and stable ABI/TBI patients, had an opportunity to study Weschler Memory Scale IV, standardized Psychometric test battery in mTBI patients or concussion head injury, neurocognitive types of deficit in mTBI with 7 cognitive modules. We tried to determine the specific pattern of cognitive impairments in patients with mild traumatic brain injury.

**MATERIAL AND METHODS**

In past 12 months, 35 patients (F: M = 17:18) have presented at our center for the treatment of persistent symptoms following mTBI. Mean age was 41 years (range 19-72 years) and the mean period elapsed after mTBI was 19 months. Majority presented with persistent headaches, vertigo and seizures but only 4 (11.4%) subjectively complained of memory loss.

Patients were screened for cognitive impairment with Montreal Cognitive Assessment (MoCA) followed by Wechsler Memory Scale assessment (WMS-IV). WMS-IV assesses the auditory, visual, immediate and delayed recall memories in detail. Patients are allotted index score in each modality. A score of 100 is considered average. Average period of the test from the TBI in mTBI group was 20 months.

**RESULTS:**

19 patients (54%) had abnormal MoCA scores (<27). The mean score for auditory, visual, visual working, immediate recall and delayed recall memories were 85, 75, 76, 81 and 75 respectively that are in the bottom 25th percentile for all modalities. Visual memory and the delayed recall memory (11th percentiles) are the most affected cognitive functions followed by the working visual memory (13th percentile). Auditory memory (22 percentile) was the least affected cognitive modality. Paired T test for average score and percentile score AMI vs VMI P value 0.042.

**RESULTS Cont.**

Cognitive impairment persists in majority (75%) of patients even a year after mTBI from the point prevalence in our previous study.

**CONCLUSIONS**

Assessment of cognitive impairment should be a mandatory protocol while evaluating patients of mTBI. A majority of MTBI patients continue to suffer from occult cognitive impairment long after the initial injury. Impairment of Visual memory and delayed recall (V-D-IP) is the significant pattern seen in all patients with mTBI with consistent results in all 35 patients in study group. mTBI with persistent symptoms after 4 weeks should have assessment of cognitive functioning as a standard protocol with specific emphasis on A-V-DIP.

**Author Recommendations:**
- Mandatory 2 week and 3 month follow up after mTBI with trained physician in TBI.
- Routine screening of mTBI patients with MoCA.
- Positive MoCA with persistent symptoms of cognitive impairment should be further tested with standardized WMS-IV and confirmed with A-V-DIP sign.
- mTBI patients should be given an opportunity to Neuro-Cognitive Rehab as active intervention rather than nature takes its own course or labeled as percentage disability in our veterans. Please follow our poster # P6.189.

**Contact Author:**
Suresh Kumar M.D.
Board Certified Neurology & UCNS Headaches Medicine
Director of TBI & Neuro-cognitive rehab Center
Director of Neurology & Headache Center Inc.
3555 Youree Drive
Shreveport, La-71105
Phone 318-865-1200 318-865-5700 Ext 6
Fax 318-865-1300
nhheadach.com
neuroheadache.com
reganmemorycenter.com