OP – 28

Neurocognitive dysfunction in patients with neurotoxic snake envenomation in Northern India

Navneet Sharma, Aarti, **Ashish Bhalla**, Adarsh Kohli, Susheel Kumar
Post Graduate Institute of Medical Education and Research, Chandigarh

Objective: Snake envenomation leads to neurocognitive deficits due to the effect of acetylcholine at the alpha-7 nicotinic acetylcholine receptor present in different parts of the human brain. To prospectively assess the neurocognitive dysfunction in patients with neurotoxic snake (*Bungarus ceruleus*) envenomation prior to their discharge from the hospital and to reevaluate at 3 months for improvement.

Methods: 48 prospective patients admitted to the medical emergency with neurotoxic snake envenomation from 1st March 2012 to 31st October 2013 were included in the study. Detailed history, clinical evaluation including detailed neurologic examination, hematological and biochemical parameters were recorded. They received treatment as per the National Snake Bite emergency protocol. They were subjected to a detailed neurocognitive testing before discharge from the medical emergency and these were repeated at three months of follow-up. The tests used were Trail A, Trail B, PGI memory scale, Bender Visual Motor Gestalt tests. These were chosen to assess memory, attention, concentration, executive functions and perceptual motor skills. Descriptive statistics for normally distributed data was expressed as Mean±SD. Paired "t" test for normalcy data and for skewed data, the Wilcoxon Signed Rank test was applied. P value of <0.05 was considered as significant. All statistical analysis was done using the SPSS version 15.

Results: Forty eight patients were included in the study. The mean age was 29.67±11.9 years (range=12-65 years). 66.7% were male. At baseline, median time taken for 'Trail A' test was 97.5 seconds (range 28-380 seconds). For Trail B test, the median time taken was 210 seconds (Range 90-390). Baseline score for PGI Memory scale was 52.70±11.84. Mean error score for BVMG test score was 5.77±4.64 and MMSE score was 26.81±3.66. At 3 months follow up there was improvement in all scores and it was statistically significant for PGI Memory (p<0.001). However, significant deficits continued to persist in relation to the frontal and temporal lobe functioning of the brain when compared to healthy controls.

Conclusion: Snake envenomation leads to partly reversible neurocognitive dysfunction. Its long term effects on cognition and functioning needs to be studied.