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Citicoline in severe traumatic brain injury: indications for improved outcome : A retrospective matched pair analysis from 14 Austrian trauma centers.

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Abstract

Goal-oriented management of traumatic brain injury (TBI) can save the lives and/or improve the long-term outcome of millions of affected patients worldwide. Additionally, enhancing quality of life will save enormous socio-economic costs; however, promising TBI treatment strategies with neuroprotective agents, such as citicoline (CDP-choline), lacked evidence or produced contradictory results in clinical trials. During a prehospital TBI project to optimize early TBI care within 14 Austrian trauma centers, data on 778 TBI patients were prospectively collected. As preceding evaluations suggested a beneficial outcome in TBI patients treated at the Wiener Neustadt Hospital (WNH), we aimed to investigate the potential role of citicoline administration, solely applied in WNH, in those patients. In a retrospective subgroup analysis we compared 67 patients from WNH with citicoline administration and 67 matched patients from other Austrian centers without citicoline use. Patients with Glasgow Coma Scale score <13 on site and/or Abbreviated Injury Scale of the region "head" >2 were included. Our analysis revealed significantly reduced rates of intensive care unit (ICU) mortality (5% vs. 24%, $p < 0.01$), in-hospital mortality (9% vs. 24%, $p = 0.035$) and 6-month mortality (13% vs. 28%, $p = 0.031$), as well as of unfavorable outcome (34% vs. 57%, $p = 0.015$) and observed vs. expected ratio for mortality (0.42 vs. 0.84) in the WNH (citicoline receivers) group. Despite the limitations of a retrospective subgroup analysis our findings suggest a possible correlation between early and consequent citicoline administration and beneficial outcomes. Therefore, we aim to set up an initiative for a prospective, multicenter randomized controlled trial with citicoline in sTBI (severe TBI) patients.

KEYWORDS: Citicoline; Intensive care medicine; Neuroprotective agents; Outcome; Traumatic brain

injury

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