There have been several studies demonstrating the highly beneficial effects of branched chain aminoacids (BCAAs) in the patient suffering mild to severe brain injury [1) 2) 3)].

In 2013, Jeter et al [4)] demonstrated that circulating BCAAs are significantly reduced in both mild and severe TBI as compared to controls, postulating an increase in uptake by the injured brain.

In 2015 Elkind et al, [5)] utilizing an established mouse model for TBI, demonstrated reversal of cognitive decline with early and consistent BCAA therapy. Lastly, Sharma et al, just published a systematic review of 11 articles on TBI and BCAAs. Three of the studies demonstrated consistent abnormally low levels of BCAA concentrations post-TBI, while the remaining 8 focused on BCAA supplementation including 3 animal and 5 human studies. The animal studies on mild to moderate TBI showed that BCAAs improved post-TBI outcomes. The human studies were in severe TBI and 4 of the 5 studies reported improved outcome with BCAA supplementation [6)].

Dickerman et al. have been optimizing the nutritional states of their own neurosurgical patients with BCAA supplementation for years without deleterious effects and obvious beneficial effects in postoperative recovery. While the development of a guideline will require several large randomized trials, they would offer, with the aforementioned new data on BCAAs as well as there own observational results, that nutrition guidelines in the form of specific nutrients such as BCAAs should be of utmost importance. A collaborative effort among the Joint Committee to establish a well-designed, multi-institutional study on TBI and early treatment with BCAAs should provide definitive information on improving outcomes through specific nutrient replacement [7)].

1) , 4)
Jeter CB, Hergenroeder GW, Ward NH, et al. Human mild traumatic brain injury decreases circulating branched-chain amino acids and their metabolite levels. J Neurotrauma. 2013;15(8):671-679.
2) , 5)
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3) , 6)
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7)
Dickerman R, Reynolds A, Williamson J, Winters K. Letter: Guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition. Neurosurgery. 2017 Oct 1;81(4):E50. doi: 10.1093/neuros/nyx308. PubMed PMID: 28934444.

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