S100B in traumatic brain injury

- Effects of Selective Head-and-Neck Cooling on Brain Injury-Related Biomarker Levels and Symptom Rating Following a Boxing Bout: Protocol for an Exploratory Randomized Trial
- Blood-Based Biomarkers for Improved Characterization of Traumatic Brain Injury: Recommendations from the 2024 National Institute for Neurological Disorders and Stroke Traumatic Brain Injury Classification and Nomenclature Initiative Blood-Based Biomarkers Working Group
- Serum Biomarkers as Adjuncts to the National Institute for Health and Care Excellence Head Injury Guidelines (NG232, 2023) When Selecting Patients with Traumatic Brain Injury for Computed Tomography: A Collaborative European NeuroTrauma Effectiveness Research in Traumatic Brain Injury Study
- Can the Association of the Biomarkers GFAP and UCH-L1 Predict Intracranial Injury After Mild Traumatic Brain Injury in Adults? A Systematic Review and Meta-Analysis
- Repurposing of high-dose N-acetylcysteine as anti-inflammatory, antioxidant and neuroprotective agent in moderate to severe traumatic brain injury patients: a randomized controlled trial
- Validation of the Scandinavian neurotrauma committee guidelines - A retrospective study in region Örebro county
- A head-to-head comparison of S100B and GFAP/UCH-L1 for detection of traumatic intracranial lesions in a Scandinavian trauma cohort
- Is there a clinical benefit of S100B for the management of mild traumatic brain injury?

Trnka et al. examined the levels of S100B protein in 124 patients with traumatic brain injury (TBI).

The S100B protein level 72 h after injury and changes over 72 h afterward are statistically significant for the prediction of a good clinical condition 1 month after injury. The highest sensitivity (81.4%) and specificity (83.3%) for the S100B protein value after 72 h was obtained for a cut-off value of 0.114. For the change after 72 h, that is a decrease in S100B value, the optimal cut-off is 0.730, where the sum of specificity (76.3%) and sensitivity (54.2%) is the highest, or a decrease by 0.526 at the cut-off value, where sensitivity (62.5%) and specificity (62.9%) are more balanced. The S100B values were the highest at baseline; the S100B value taken 72 h after trauma negatively correlated with GCS upon discharge or transfer (r=-0.517, P<0.0001). They found no relationship between S100B protein and hypertension, diabetes mellitus, BMI, or the season when the trauma occurred. Changes in values and a higher level of S100B protein were demonstrated in polytraumas with a median of 1.070 (0.042; 8.780) µg/L compared to isolated TBI with a median of 0.421 (0.042; 11.230) µg/L.

S100B protein level with specimen collection 72 h after trauma can be used as a complementary marker of patient prognosis [1)].

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1)

Trnka S, Stejskal P, Jablonsky J, Krahulik D, Pohlodek D, Hrabalek L. S100B protein as a biomarker and predictor in traumatic brain injury. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2023 Jul 10. doi: 10.5507/bp.2023.025. Epub ahead of print. PMID: 37431619.

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