

21-aminosteroids for severe traumatic brain injury

Level I ¹⁾: the use of [glucocorticoids](#) ([steroids](#)) is not recommended for improving outcome or reducing ICP in patients with [severe traumatic brain injury](#) (except in patients with known depletion of endogenous [adrenal gland hormones](#) ^{2) 3)}). High-dose [methylprednisolone](#) is associated with increased [mortality](#) and is contraindicated ⁴⁾.

Although [glucocorticoids](#) reduce vasogenic [cerebral edema](#) (e.g. surrounding brain tumors) and may be effective in lowering ICP in [pseudotumor cerebri](#), they have little effect on cytotoxic [cerebral edema](#), which is the more prevalent derangement following trauma.

Significant side effects may occur with steroids ⁵⁾, including coagulopathies, hyperglycemia ⁶⁾ with its undesirable effect on cerebral edema—see Possible deleterious side effects of steroids —and increased incidence of [infection](#) (due to [immunosuppression](#)). High-dose methylprednisolone is associated with increased mortality ⁷⁾

Non-glucocorticoid steroids (e.g. [21-aminosteroids](#), AKA [lazaroids](#), including [tirilazad](#)) ^{8) 9)} and the synthetic glucocorticoid [triamcinolone](#) have also failed to show overall benefit ¹⁰⁾.

References

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Brain Trauma Foundation, Povlishock JT, Bullock MR. Steroids. J Neurotrauma. 2007; 24:S91–S95

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Bullock R, Chesnut RM, Clifton G, et al. The role of glucocorticoids in the treatment of severe head injury. In: Guidelines for the Management of Severe Head Injury. The Brain Trauma Foundation (New York), The American Association of Neurological Surgeons (Park Ridge, Illinois), and The Joint Section of Neurotrauma and Critical Care; 1995

³⁾

The Brain Trauma Foundation. The American Association of Neurological Surgeons. The Joint Section on Neurotrauma and Critical Care. Role of steroids. J Neurotrauma. 2000; 17:531–535

⁵⁾

Braughler JM, Hall ED. Current Application of “High-Dose” Steroid Therapy for CNS Injury: A Pharmacological Perspective. J Neurosurg. 1985; 62:806–810

⁶⁾

Lam AM, Winn HR, Cullen BF, et al. Hyperglycemia and Neurologic Outcome in Patients with Head Injury. J Neurosurg. 1991; 75:545–551

⁷⁾

Roberts I, Yates D, Sandercock P, et al. Effects of intravenous corticosteroids on death within 14 days in 10,008 adults with clinically significant head injury (MRC CRASH trial): randomized placebo controlled trial. Lancet. 2004; 364

⁸⁾

Doppenberg EMR, Bullock R. Clinical neuro-protection trials in severe traumatic brain injury: lessons from previous studies. J Neurotrauma. 1997; 14:71–80

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Marshall LF, Maas AL, Marshall SB, et al. A multicenter trial on the efficacy of using tirilazad mesylate in cases of head injury. J Neurosurg. 1998; 89: 519–525

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Grumme T, Baethmann A, Kolodziejczyk D, et al. Treatment of patients with severe head injury by triamcinolone: a prospective, controlled multicenter clinical trial of 396 cases. Res Exp Med (Berl). 1995; 195:217-229

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