

## Treatment of High Intracranial Pressure After Traumatic Brain Injury



One of the most frequent causes of death and disability after severe traumatic brain injury (TBI) is high intracranial pressure (ICP). ICP is generally treated with usual techniques such as normothermia, sedation, etc. and first-line therapeutic strategies such as moderate hypocapnia, mannitol etc. However, in patients where these measures do not work, second-line therapies are usually initiated. These include barbiturates, hyperventilation, moderate hypothermia, or secondary decompressive craniectomy.

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In this review, the researchers aimed to assess the effects of secondary decompressive craniectomy (DC) on outcomes in patients suffering from severe TBI and in whom conventional therapies had already failed to control high ICP. For the purpose of this assessment, the researchers included patients over the age of 12 months with severe TBI who had either undergone DC to control ICP refractory to conventional treatments or received standard care.

590 participants from three clinical trials were included in the analysis. One trial included 27 children; another recruited 155 adults, while the third trial recruited 408 adolescents and adults from 24 countries. All three trials compared DC combined with standard care. Patient outcomes in the three trials were measured up to six months after injury, and in one trial, outcomes were measured at 12 and 24 months as well.

Based on the findings of the analysis, it was revealed that the risk of death at six months was slightly reduced with DC. One study showed a clear reduction in risk of death at 12 months. Pooled results for two studies demonstrated moderate-quality evidence that DC was superior to standard care for reducing ICP within 48 hours.

Overall, the authors conclude that DC holds promise of reduced mortality. However, the effects of long-term neurological outcomes remain controversial. There is a need to conduct additional research that focuses on clinical and neuroimaging characteristics to be able to identify patients who would survive with acceptable quality of life and also to assess the best timing for DC, the most appropriate techniques and whether there might be a possibility of using synergistic treatments with DC to improve patient outcomes.

Source: [Cochrane Systematic Review - Intervention](#)

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