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**Journal of Neurosurgery**

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**ARTICLES**

**Improved confidence of outcome prediction in severe head injury  
A comparative analysis of the clinical examination, multimodality evoked potentials, CT scanning, and intracranial pressure**

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**Abstract**

✓ An analysis of clinical signs, singly or in combination, multimodality evoked potentials (MEP's), computerized tomography scans, and intracranial pressure (ICP) data was undertaken prospectively in 133 severely head-injured patients to ascertain the accuracy, reliability, and relative value of these indicants individually, or in various combinations, in predicting one of two categories of outcome. Erroneous predictions, either falsely optimistic (FO) or falsely pessimistic (FP), were analyzed to gain pathophysiological insights into the disease process. Falsely optimistic predictions occurred because of unpredictable complications, whereas FP predictions were due to intrinsic weakness of the indicants as prognosticators.

A combination of clinical data, including age, Glasgow Coma Scale (GCS) score, pupillary response, presence of surgical mass lesions, extraocular motility, and motor posturing predicted outcome with 82% accuracy, 43% with over 90% confidence. Nine percent of predictions were FO and 9% FP. The GCS score alone was accurate in 80% of predictions, but at a lower level of confidence (25% at the over-90% level), with 7% FO and 13% FP. Computerized tomography and ICP data in isolation proved to be poor prognostic indicants. When combined individually with clinical data, however, they increased the number of predictions made with over 90% confidence to 52% and 55%, respectively. Data from MEP's represented the most accurate single prognostic indicant, with 91% correct predictions, 25% at the over-90% confidence level. There were no FP errors associated with this indicant. Supplementation of the clinical examination with MEP data yielded optimal prognostic power, an 89% accuracy rate, with 64% over the 90% confidence level and only 4% FP errors.

The clinical examination remains the strongest basis for prognosticating outcome in severe head injury, but additional studies enhance the reliability of such predictions.

**Related Articles**

By Keywords: [head injury](#), [prognosis](#), [multimodality evoked potentials](#), [computerized tomography](#), [intracranial pressure](#), [Glasgow Coma Scale](#), [clinical examination](#)

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