Withdrawing life support for traumatic brain injuries needs cautious approach

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Death following severe traumatic brain injury is associated with a highly variable incidence of withdrawal of life support at the end of life, finds a new study in CMAJ. Rates of withdrawal of life support vary between hospitals, and caution should be used in making this decision, states the study in CMAJ *(Canadian Medical Association Journal)*.

For patients under 45 years of age, traumatic brain injury is a leading cause of death and disability. Patients in hospital with these injuries are usually unable to make decisions about their medical care, so decisions to withdraw life support are made by physicians and family members based on poor prognosis, physician experience, the patient's wishes and/or religious views. However, few accurate tools exist to predict disability and long-term outcomes for these patients.

A multicentre team of Canadian researchers looked at death rates following withdrawal of life support in patients with severe traumatic brain injury in six trauma centres in Quebec, Ontario and Alberta. They looked at 720 patients over age 16, of whom 77% were male. Motor vehicle accidents were the main cause of injury (57%) followed by falls (31%) and assault (8%).

There was significant variability in death rates. Of the 720 patients, 32% (228) died in hospital, although the rate varied from 11% to 44% across centres. Seventy per cent of deaths (ranging from 64% to 76%) were associated with withdrawing life-sustaining therapy, with about half of these deaths occurring within three days.

"We saw that most deaths after severe traumatic brain injury occurred after withdrawal of life-sustaining therapy and that the rate of withdrawal of life-sustaining therapy varied significantly across level-one trauma centres," writes Dr. Alexis Turgeon, Laval University, Quebec, with coauthors. "We also saw considerable variability in overall hospital mortality that persisted after risk adjustment. This raises the concern that differences in mortality between centres may be partly due to variation in physicians' perceptions of long-term prognosis and physicians' practice patterns for recommending withdrawal of life-sustaining therapy."

The authors conclude that caution must be used both in estimating prognoses for patients with severe traumatic brain injuries and in recommending withdrawal of life-sustaining therapy until accurate diagnostic tools are available.

"Although we attribute the variability in withdrawal of life-sustaining therapy to differences in patient preferences, the article by Turgeon and colleagues adds to the growing body of literature that physician practice and the culture of medical centres may play an equally strong role," write Drs. David Livingston and Anne Mosenthal, Department of Surgery, New Jersey Medical School in a related commentary.

They suggest that the large variability in treatment between trauma centres is also due to differences in how physicians manage prognostic uncertainty in severe traumatic brain injury and the nature of their communication of this uncertainty to families and patients.

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