Brain Death and Overdose

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Background

• Declaring brain death is complex.
  ❖ The decision is irreversible.

• Hospital guidelines aid clinicians diagnosing brain death.
  ❖ Psychoactive drug overdoses are at risk of premature diagnosis of brain death.

➢ This study determines prevalence of brain death discussion and diagnosis among fatal poisonings reported to a regional Poison Center in the United States.

Methods

• Two un-blinded investigators coded all records involving brain death in patients 18 years and older from a regional Poison Center between 1/1/03 – 6/30/12.

• Reported ingestions were categorized as presence or absence of psychoactive substances (opioids, sedative-hypnotics, antidepressants, antipsychotics, or antiepileptics).

• Time of presentation, time that initial brain death discussion was reported to the Poison Center, and time of brain death diagnosis were recorded.
  ❖ Cases were coded as brain death discussion when brain death was suspected in the poison control chart but confirmation was not documented.

• Descriptive statistics were used for data analysis.

Conclusions

• Premature suspicion of brain death reported to patients’ families occurred frequently in our cohort of patients.

• Patients diagnosed brain dead within 24 hours following psychoactive overdoses are of paramount concern.
  ➢ Two cases with unknown potential for complete neurologic recovery had withdrawal of care.

• This study only includes cases reported to a regional Poison Center, therefore prevalence of suspected brain death immediately after overdose is likely underestimated.

• A prospective case-control study including injury severity and comorbidity scoring may help eliminate premature death assignments.

Results

• 35 cases out of 259 deaths were documented as suspected or declared brain dead (13.5%, CI 9.3%-17.7%).

• 30 patients (86%, CI 74.5%-97.5%) were documented as brain dead (suspected or declared) within 3 days of presentation.

• 13 patients (37%, CI 21%-53%) were suspected brain dead before 24 hours.

• Of 16 cases declared brain dead:
  ➢ 11 occurred within 3 days.
    ❖ 5 ingested a psychoactive drug.
  ➢ 3 occurred within 24 hours.
    ❖ 2 with documented psychoactive overdose (both were combination benzodiazepine and opioid).

References