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Evaluation of enteral feeding success in head injured patients placed in pentobarbital induced comas

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Introduction: Nutrition plays a critical role in the recovery of a traumatic brain injury. Increased caloric needs, gastric intolerance and access problems often undermine efforts to provide adequate nutrition in this population. Additionally, patients with increased intracranial pressure placed in a pentobarbital comas further challenge the administration of nutrition. Enteral nutrition (EN) is recommended for head trauma patients however controversy exists regarding the patients in pentobarbital induced comas ability to tolerate EN. At our institution, standard of practice is verified placement using bedside imaging of a transpyloric small bowel feeding tube for the administration of EN. The objective of this study was to evaluate the success of small bowel enteral feeding in head injured patients placed into pentobarbital induced comas receiving EN.

Methods: This study was a retrospective charts review. Adult patients placed in a pentobarbital induced coma and initiated on EN were included. Demographic information, EN tolerance and feeding complications were recorded. Feeding complications included watery diarrhea, a distended abdomen, severe cramping, and small bowel necrosis. Gastric residual volumes were also recorded to identify tube misplacement or migration. Residual volumes greater than 200 mls for 2 consecutive measurements were considered a feeding complication and placement was reassessed. Patient outcomes were also collected and included intensive care unit (ICU) and hospital length of stay (LOS) and patient survival. Descriptive statistics were utilized to define

the characteristics of the study population. A *p*-value less than 0.05 was considered statistically significant. All the statistical analyses were conducted using Statistical Package for Social Sciences version 16.0.

Results: Fifty-three patients were included in the study, with the majority (60.4%) being males. Data are reported as mean \pm standard deviation. Patient age was 40 ± 14.7 years, weight was 82.8 ± 22.2 kg and admission Glasgow Coma Score was 6.4 ± 3.7 . Subarachnoid and subdural hemorrhage was the primary and secondary cause of injury, occurring in 50.9% and 20.8% of the patients, respectively. Pentobarbital initiation was started within 87.6 ± 72.7 hours with a length of infusion time of 154.8 ± 113.1 hours. Total pentobarbital bolus doses were 457.9 ± 775.4 mg and daily pentobarbital doses (excluding boluses) were 1941 ± 2655 mg. EN was initiated within 53.4 ± 59.5 hours and administered for 555.8 ± 481.3 hours. EN therapy was tolerated in 46 (86.8%) of the patients. Feeding complications reported included gastric residuals, 15.1% (n=8) and watery diarrhea, 22.6% (n=12). A total of 7.5% of patients (n=4) had a distended abdomen that influenced feeding volumes. Small bowel necrosis was reported in 2 patients. In only one patient was EN discontinued and parenteral nutrition initiated. Fourteen patients (26.4%) were able to advance to an oral diet and 19 (35.8%) patients were discharged from the hospital to home or a rehabilitation center on EN. ICU LOS was 22.7 ± 18.9 days and hospital LOS was 27.2 ± 22.8 days. Death occurred in 35.8% of patients.

Conclusions: Patients placed in a pentobarbital coma for a traumatic brain injury are able to receive and tolerate EN infused into the small bowel.