Enteral nutrition in Traumatic Brain Injury

Isotonic solutions (such as Isocal® or Osmolyte®) should be used at full strength starting at 30 ml/ hr. Check gastric residuals q 4 hrs and hold feedings if residuals exceed ≈ 125 ml in an adult. Increase the rate by ≈ 15–25 ml/hr every 12–24 hrs as tolerated until the desired rate is achieved [1)].

Dilution is not recommended (may slow gastric emptying), but if it is desired, dilute with normal saline to reduce free water intake.

Cautions:

● Nasogastric tube feeding may interfere with absorption of phenytoin;

● reduced gastric emptying may be seen following head-injury [2)] (NB: some may have temporarily elevated emptying) as well as in pentobarbital coma; patients may need IV hyperalimentation until the enteric route is usable.

The technique of hypocaloric feeding [3)] (AKA “trophic feed,” “trickle feed,” among others) through an enteral feeding tube (e.g. Dobhoff tube) at a rate variously defined as at 10–20 ml/hr may be tolerated and may reduce mucosal atrophy while providing a portion of nutritional requirements. Others have described better tolerance of enteral feedings using jejunal administration [4)]

In a review of the nutritional guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition, the articles cited demonstrate early transpyloric enteral feeds within 24 to 48 h significantly decrease morbidity and mortality [5) 6) 7) 8) 9) 10)].

While these articles provide clear evidence that early nutrition is critical to survival, the most recent cited reference is 2012 and the articles lack the detail of which specific macro/micronutrients may benefit the traumatized brain. This is not a critique of the authors creating the guidelines but rather an observation of the need for serious large multi-institutional nutritional studies on TBI. Recently, there have been several studies demonstrating the highly beneficial effects of branched chain aminoacids (BCAAs) in the patient suffering mild to severe brain injury [11) 12) 13)].

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