Assessment of Early Feeding in Critically Ill Patients

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Malnutrition

- “Nutritional insufficiency due to inadequate dietary intake or impaired absorption or assimilation of food.” – DHHS
- Induced by underfeeding and negative energy balance from insufficient food intake.

A.S.P.E.N. Goals

- #1 Emphasis: restore body’s metabolic response to stress
- Feed within 48 hours of admit
- Focus on treatment to minimize malnutrition & prevent physiological deterioration
- Preserve lean body mass
- Maintain immune function
- Avoid metabolic complications

Background & Significance

- Prospective observational study, 48 ICU patients
  - Hypocaloric feeding and delayed nutrition support in ICU patients:
    - Energy deficits that cannot be compensated later in life
    - Associated with infections & further complications
  - Conclusion: Initiate feeding within 48 hours to improve outcomes since this is the window of time patients experience largest energy deficit.
- Randomized controlled trial, 150 ICU patients fed EN within first week ICU admission
  - Shorter LOS
  - Less time on ventilator
  - Reduced infectious complications
  - (Especially when initiated within 48 hours)

Physicians Perception of Early Feeding

- 150 attendings, 147 fellows, 509 residents
- Waiting time before initiating feeding
  - Average: 2.43 days
    - Fellows: 1.79 days
    - Residents: 2.63 days
- Inadequate physician education about importance of early feeding ICU patients; Underutilization of nutrition support team.

Barriers to Early Feeding

- Inappropriate feeding
- Substrate intolerance
- No GI/Bowel Function

Specific Aims

- Degree in which OHSU delays nutritional care longer than guidelines set by A.S.P.E.N in all ICU patients.
- Evaluate differences in age of patients fed within 48 hours and after 48 hours.
- Findings will be presented to all ICU staff.
- If needed, education will be provided to ICU staff.

Hypothesis

- OHSU is currently following A.S.P.E.N guidelines and initiating feeding within 48 hours of admit for 70% of patients in ICU.
- Mean age of patients fed within 48 hours of admit will be greater than the mean age of patients fed after 48 hours of admit to ICU.
General Design

- Cross sectional, retrospective, observational study at OHSU's four adult ICUs.
- Data was collected on how long patients were NPO or CL and when feeding was first initiated.
- If feedings were delayed longer than 48 hours after admission, data was collected including age, admission date, and reasons for NPO or CL longer than 48 hours.

Analysis Model

- Descriptive Statistics
  - Avg time feeding was initiated
- Single Factor Analysis of Variance (ANOVA)

Study Participants

Exclusion Criteria
- ICU patients under 21 years of age
- Admitted outside of the collection period
- Active diet order

Inclusion Criteria
- At least 21 years old
- Admitted to one of the four ICU's at OHSU between March 1st and March 14th, 2010
- NPO or CL diet

Consenting Procedures - Approved through the OHSU Institutional Review Board (IRB)

Intervention/Education - We will provide education to the ICU staff on the importance of initiating feeding within 48 hours and the results of our study. Staff education will include clinical tools designed to improve feeding initiation in the critical care setting.

Alteration in Gut Integrity and Immunology

Overall Results

N = 153

Overall Mean age: 58.1 ± 16.1
Overall Avg Hrs NPO: 38.6 ± 33.2

- Significant difference between the average number of hours of patients fed >48 hours and patients fed <48 hours (<.001)

Overall Patients Fed >48 Hrs by Unit
Advances in Diet Orders Following NPO >48 Hours

- Tube Feeding: 24%
- Diabetic: 13%
- Full Liquid: 13%
- PPN: 3%
- TPN: 5%
- Renal: 3%
- Regular: 39%

Reasons NPO >48 Hrs

- Aspiration Risk: 5%
- Post-op: 3%
- Pre-op: 25%
- Other: 6%
- Abdominal Dis: 1%
- Hemat: 8%
- No Rx: 11%
- Dx Tests: 3%
- Pt Direct: 3%
- Bowel Obstr: 6%
- GI Bleed: 6%
- GI Obstr: 2%
- Anas: 3%
- Vent: 12%
- N&V: 4%
- Pancre: 1%
- Ischemia: 4%

Avg Age Comparisons between Patients Fed >48 Hrs and <48 Hrs

- Overall avg age: - 62.5 ± 9.62
- Patients who were fed >48 hrs were significantly older than those fed <48 hrs after admission to the ICU (p<.05)

Discussion

- Overall, a significant difference between patients fed >48 hrs and patients fed <48 hrs after admittance.
- Comparing average age, patients fed >48 hours were significantly older than patients fed <48 hours.

Limitations

- NPO orders and time of admission to the ICU may have differed.
- Some orders may not communicate actual feeding initiation.
- Difficult to determine patient’s status prior to ICU admitt; may affect decision to prolong feeding.
- Small time period (15 days); may not be an accurate representation of avg days NPO at OHSU.

References