



Gastric v. Post-pyloric Feeding in the ICU

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Introduction

- Enteral feeding provides nutrients and calories which are vital to the recovery process of critically ill patients.
- Benefits of enteral nutrition include: Maintain GI motility and normal flora, lower risk of infection, and decreased cost.
- Risk factors: Delayed gastric emptying and impaired motility may lead to aspiration and pneumonia.
- Previous research indicates that post-pyloric feeding may reduce complications; however, a debate remains amongst healthcare providers as to the efficacy and safety of delivering enteral nutrition via post-pyloric versus gastric route.

PICO Question

Population: Intensive care patients requiring enteral nutrition.

Intervention: Current protocol to provide enteral nutrition via post-pyloric feeding tube.

Comparison: Post –pyloric v. gastric feeding to provide nutrition for persons who are critically ill.

Outcome: Reduction in aspiration, pneumonia, length of stay, and mortality.

Question: Which method of enteral feeding is best for patients who are critically ill?

Methods:

We conducted a literature search using a combination of the following keywords in PubMed and CINAHL.

Keywords: *gastric feeding, post-pyloric, nasojejunal tube feeding, enteral feeding*

Inclusion Criteria: Peer reviewed articles related to critically ill patients requiring enteral nutrition published within the last 10 years.

A combination of the search terms yielded 297 articles. Based on the inclusion criteria and information found in the abstract, we selected 10 articles for full review. Findings from four of the articles were included in meta-analyses, and two of the articles were literature reviews. Thus, these six articles were excluded from our review.

Results

Study	Methods	Results	Conclusions
Ho, et al. (2006)	Meta-analysis of 11 randomized controlled studies (n= 637)	<ul style="list-style-type: none"> • No significant difference in mortality • Similar risk for aspiration and pneumonia • No significant difference in length of stay and risk of diarrhea • Gastric feeding has lower risk of blockage and difficulties with tube placement 	<ul style="list-style-type: none"> • No significant clinical benefit of early post-pyloric feeding in patients with no signs of impaired gastric emptying • Difficulties in post-pyloric tube placement or blockage were common • Routine use of early post-pyloric feeding not recommended
Huang, et al. (2012)	Two year prospective, randomized, clinical study of adult ICU patients (n= 101)	<ul style="list-style-type: none"> • No difference in energy and protein intake, length of stay, nitrogen balance, or feeding complication in less severely ill patients (APACHE II < 20) • Gastric feeding results in lower energy and protein intake, more complications, longer stays, and poorer nitrogen balance in more severely ill patients (APACHE II >20) 	<ul style="list-style-type: none"> • Gastric feeding is recommended for less severely ill patients • Post-pyloric feeding is recommended for more severely ill patients
Jiyong, et al. (2013)	Meta-analysis of 15 randomized clinical trials (n= 966)	<ul style="list-style-type: none"> • Reduction in pneumonia with post-pyloric v. gastric feeding • No significant difference in aspiration and vomiting 	<ul style="list-style-type: none"> • Because post-pyloric feeding in critically ill patients decreases the risk of pneumonia, this method of feeding should be used in ICUs when possible • No difference in rates of aspiration and vomiting
Zhang, et al. (2013)	Systematic review of 17 randomized control trials	<ul style="list-style-type: none"> • Post-pyloric feeding is able to increase the energy delivery and reduce GRV in critically ill patients • No significant difference in aspiration, pneumonia, and mortality in post-pyloric feeding 	<ul style="list-style-type: none"> • Post-pyloric feeding in critically ill patients can help reduce GRV • No evidence that post-pyloric feeding improves clinical outcomes

Discussion

- Overall, the literature indicates no general preference for post-pyloric over gastric feeding.
- Huang et al. found this to be true only in patients with a lower severity of illness as determined by the APACHE II scale. However, this is a single study that utilizes a small sample size.
- Jiyong et al. did find a significant decrease in pneumonia, but the explanation for this finding is unclear.
- The rates of aspiration, length of stay, and mortality are similar between post-pyloric and gastric feeding in patients without impaired gastric motility.

Conclusions

- No difference between gastric and post-pyloric feeding in regards to length of stay, aspiration, and pneumonia in patients with normal gastric motility.
- Post-pyloric feeding is able to deliver higher energy requirements and reduce gastric residual volumes in those with motility issues.
- More tube placement and obstruction issues with the post- pyloric feeding. Delayed nutrition is not recommended.

References

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