A Systematic Review of Non-continuous Versus Continuous Gastric Tube Feeding and Risk of Aspiration Pneumonia, Delayed Gastric Emptying and Diarrhoea in Adults

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Authors’ contributions

This work was carried out in collaboration between both authors. Author DS designed the study, wrote the protocol, managed the literature searches, performed and managed the analyses of the study. Both authors read and approved the final manuscript.

ABSTRACT

Background: Enteral tube feeding (ETF), either continuous or non-continuous may be used to meet nutritional needs but is associated with risks of aspiration pneumonia, delayed gastric emptying or diarrhoea. These can have serious consequences, particularly for patients who are critically ill or with swallowing disorders [1]. The aim of this review was to compare the incidence of complications associated with non-continuous (N-CETF) versus continuous delivery (CETF).

Method: Databases MEDLINE, CINAHL, Cochrane Library, ProQuest, AMED and SCOPUS were searched between February 26th - March 8th 2013. Both the search and review were carried out by a single investigator. All study designs were considered that assist in answering the question. Outcome measures were aspiration pneumonia (AP), pulmonary aspiration, delayed gastric emptying and diarrhoea. Quality assessment was carried out on all included studies using a tool for quantitative studies [2].

Results: 7 studies were included: 4 randomized controlled trials (RCTs); 2 controlled clinical trials (CCTs); and 1 case study (total of 682 subjects). All trials commenced in hospital, 4 in general medical wards and 3 in intensive care. Of the 5 studies with AP as an outcome, none reported a significant difference between N-CETF and CETF. Of the 3 studies reporting the incidence of stool frequency and consistency 2 found no significant

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difference between N-CETF and CETF. However, 1 CCT reported a five-fold increased risk of diarrhoea with fibre-free N-CETF when compared to fibre-rich CETF. There was no statistically significant difference between the two modes of feeding with regard to delayed gastric emptying and pulmonary aspiration. Of the 4 RCTs 3 were rated to be of moderate quality and the remaining 4 studies were rated to be of weak quality.

**Discussion:** No strong evidence exists of clear benefit for one mode of delivery over another, which is consistent with previous review literature [3] and guidelines [4]. The lack of clear, good-quality evidence in ETF studies may in part be due to ethical considerations. The absence of an internationally standardized tool for assessing stool consistency and frequency undermines the validity and reliability of some of the stated results (incidence of diarrhoea).

**Conclusion:** This review does not provide conclusive evidence that the incidences of complications are different between N-CETF and CETF and is thus unable to make recommendations for a change in practice.

**Keywords:** Enteral; tube feeding; non-continuous; bolus; aspiration; diarrhoea; pneumonia; GRV.

**REFERENCES**


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