

| PublisherInfo | | |
|----------------------|---|----------------|
| PublisherName | : | BioMed Central |
| PublisherLocation | : | London |
| PublisherImprintName | : | BioMed Central |

Reflux during nasojejunal feeding

| ArticleInfo | | |
|-----------------------|---|--|
| ArticleID | : | 4145 |
| ArticleDOI | : | 10.1186/ccf-1999-941 |
| ArticleCitationID | : | 941 |
| ArticleSequenceNumber | : | 82 |
| ArticleCategory | : | Paper Report |
| ArticleFirstPage | : | 1 |
| ArticleLastPage | : | 3 |
| ArticleHistory | : | RegistrationDate : 1999-7-8 OnlineDate : 1999-7-8 |
| ArticleCopyright | : | Current Science Ltd1999 |
| ArticleGrants | : | |
| ArticleContext | : | 130541111 |

Keywords

Critically ill, enteral feeding, gut dysfunction

Comments

Although some duodenogastric reflux occurs during nasojejunal feeding abactericidal pH in the stomach remains. However reflux may become moresignificant during long-term feeding and large numbers will be required todiscover whether the proposed benefits of nasojejunal feeding have anyeffect on outcome.

Introduction

It is accepted that early enteral feeding in the intensive care unit (ICU) patientis important, but frequently gastric stasis prevents feeding via thenasogastric tube. Feeding via a nasojejunal feed may improve the abilityto deliver calories and overcome the danger of aspiration of stagnantgastric contents. It may also prevent gastric bacterial overgrowth, whichhas been implicated in aspiration pneumonia, by conserving gastric acidity.The aims of this study were to assess whether these benefits hold true fornasojejunal feeding.

Aims

To investigate the effect on gastric pH and incidence ofduodenogastric reflux during nasojejunal feeding in critically illpatients.

Methods

A total of 21 patients being mechanically ventilated on the ICU and requiringenteral feeding over a 6 month period (1995/1996) were studied. Medicationsaffecting gastric motility and/or gastric acid

production were discontinued for the period of the study. A double-lumen nasogastrorjejunal feeding tube was passed under X-ray control, and continuous intragastric pH measurements were taken during fasting (240 min) and a subsequent period of feeding with a standard liquid diet (240 min). In addition, 11 patients had the feed labelled with ^{111}In DTPA and gastric aspirates taken every 30 min; subsequently measurements of volume, glucose, bile acid and radioactivity were made.

Results

Median pH during fasting was 1.59 which rose to 2.33 during nasojejunal feeding ($P = 0.013$), and the duration of time recorded with a $\text{pH} \geq 4$ also rose from 1 to 9 min ($P = 0.026$) over the two periods. A total of 10 out of 11 patients showed a significant rise in radioactivity of aspirates during feeding and bile acid concentration rose in all 11 patients from $392 \mu\text{mol/l}$ during fasting to $1446 \mu\text{mol/l}$ during nasojejunal feeding ($P = 0.01$). Glucose concentrations and gastric aspirate volumes rose during feeding although the volume change was not statistically significant.

Discussion

Nasogastric feeding may put the critically ill patient at risk from ventilator associated pneumonia through aspiration of contents. Nasogastric feed may also promote gastric colonisation since gastric pH is raised. It has been suggested that nasojejunal feeding may therefore offer certain advantages. However this study shows that there is significant duodenogastric reflux during nasojejunal feeding and that biliary secretion is not inhibited even though food is delivered beyond the duodenum. However gastric pH remained acidic during feeding and previous studies have shown that a $\text{pH} < 4$ is bactericidal. Duodenogastric reflux is a physiological phenomenon and may have been worsened by the presence of a tube through the pyloric sphincter.

References

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