Three initial diets for management of mild acute pancreatitis: a meta-analysis
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CRD summary
This review concluded that non-liquid (soft or solid) diets did not increase the recurrence of pain after treatment and they shortened the hospital stay, compared with clear liquid diets, for patients with mild acute pancreatitis. Given the few small trials included in the review, the reliability of the authors' conclusion is not clear.

Authors' objectives
To compare non-liquid and clear-liquid diets for the treatment of mild acute pancreatitis.

Searching
EMBASE, PubMed, EBM reviews, Science Citation Index Expanded, and CBM were searched up to March 2011, without language restrictions; key search terms were reported. Reference lists of relevant articles were checked.

Study selection
Eligible for inclusion were randomised controlled trials (RCTs) comparing a non-liquid diet (including soft and solid diets) with a clear-liquid diet for patients with a diagnosis of mild acute pancreatitis. Diagnosis had to be confirmed by computed tomography, Acute Physiology and Chronic Health Evaluation (APACHE) II score, and basic laboratory examination. The outcomes of interest were: length of hospital stay, total length of hospital stay, and recurrence of pain after treatment. Trials were excluded if patients received other nutritional supplements. Non-clinical trials and trials that compared forms of nutritious diet and fasting were excluded.

One trial assessed a soft diet, one assessed a soft and solid diet, and one assessed a solid diet, all compared with a liquid diet. The time between admission and first meal ranged from one to 3.6 days, and the total calorie intake on the first day ranged from 241 to 1,240. The mean age ranged from 37 years to 53 years; most participants were male; and, where reported, the mean body mass index ranged from 20.9 to 29%. The two main causes of pancreatitis were the biliary system and alcohol.

The authors did not state how many reviewers were involved in the selection of trials.

Assessment of study quality
Trial quality was assessed independently by two reviewers using the Cochrane bias tool, which considers randomisation, allocation concealment, blinding (participants, investigators, outcome assessors, and data analysis), and completeness of follow-up. Disagreements were resolved through consultation with a third reviewer.

Data extraction
Two reviewers extracted data from the included trials. For dichotomous outcomes, the data to calculate relative risks were extracted and for continuous outcomes, the data to calculate mean differences were extracted.

Methods of synthesis
The pooled relative risks and mean differences, with 95% confidence intervals, were calculated using a fixed-effect model, unless significant statistical heterogeneity was found, in which case a random-effects model was also used. Heterogeneity was investigated using Χ² (p<0.10 was considered to be significant) and I². Subgroup analyses by type of non-liquid diet (soft versus solid) were performed.

Results of the review
Three double-blind RCTs were included, with 432 participants. All the trials reported adequate randomisation and allocation concealment. All trials used intention-to-treat analysis.

Recurrence of pain: No statistically significant difference was found between a non-liquid diet and a liquid diet (three RCTs). The results did not substantially alter when type of non-liquid diet was considered (two RCTs each). No evidence of statistical heterogeneity was found.
Length of hospitalisation: A significant decrease in minimum hospital stay (days) was found with a non-liquid diet compared with a liquid diet (MD 1.18, 95% CI 0.82 to 1.55; I²=89%; three RCTs); a fixed-effect model was reported. When the type of non-liquid diet was considered, a significant difference in favour of a solid diet was found compared with a liquid diet (MD -1.05, 95% CI -1.43 to -0.66; I²=92%; two RCTs). No significant difference was found for a soft diet versus a liquid diet, but evidence of significant heterogeneity was found.

Total hospitalisation: A statistically significant difference was found in favour of a non-liquid diet (MD 1.31, 95% CI 0.45 to 2.17; I²=79%; two RCTs); a fixed-effect model was reported. No significant between-group differences were found for the subgroup analyses by type of non-liquid diet (two RCTs for soft and one RCT for solid).

Authors’ conclusions
Non-liquid (soft or solid) diets did not increase the recurrence of pain after treatment and they shortened the hospital stay, compared with clear-liquid diets.

CRD commentary
The review question was supported by defined inclusion criteria, and several sources were searched for relevant trials, with no restriction by language, minimising the likelihood of publication and language bias. Appropriate steps were taken to minimise error and bias in the extraction of data and the assessment of trial quality, but it was unclear whether similar steps were taken in the selection of trials.

Study quality was assessed using relevant criteria and the details were reported. Limited study, patient and regimen details were presented, and substantial differences in total calorie intake were reported across the included trials. Standard meta-analysis was used to pool the data and heterogeneity was assessed. Substantial heterogeneity was found for a number of analyses, but fixed-effect model results were reported, despite stating that a random-effects model would be used where significant heterogeneity was found.

Given the few small trials included in the review, the reliability of the authors’ conclusion is not clear.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further RCTs comparing different diet forms in the management of mild acute pancreatitis were needed.

Funding
Not stated.

Bibliographic details

PubMedID
22072857

DOI
10.3748/wjg.v17.i37.4235

Original Paper URL
http://www.wjgnet.com/1007-9327/abstract/v17/i37/4235.htm

Indexing Status
Subject indexing assigned by NLM.

MeSH
Adult; Databases, Factual; Diet; Disease Management; Female; Hospitalization; Humans; Male; Middle Aged;
Pancreatitis /diet therapy; Randomized Controlled Trials as Topic

**AccessionNumber**
12011007170

**Date bibliographic record published**
12/09/2012

**Date abstract record published**
04/12/2012

**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.