Evidence for early oral feeding of patients after elective open colorectal surgery: a literature review

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CRD summary
The authors concluded that there was support for early oral feeding after elective open colorectal surgery and that early feeding was found to be safe and well-tolerated. Poor reporting of the review methods and the reliance upon non-randomised studies make it difficult to be confident that the conclusions are reliable.

Authors' objectives
To evaluate the effects of early oral feeding after elective open colorectal surgery.

Searching
MEDLINE, PubMed, CINAHL, Web of Science and the Cochrane Library were searched for studies published in English between 1995 and 2004; the search terms were reported.

Study selection
Experimental, quasi-experimental and observational studies that evaluated the effect of early oral feeding (defined as starting oral intake before clinical signs of the return of bowel function) in adults who had undergone elective open colorectal surgery were eligible for inclusion. Controls, where possible, were traditional feeding (defined as starting oral intake after the passage of flatus or bowel movement, or at an individual surgeon’s discretion). Studies of tube feeding were excluded. The main review outcomes were safety measured using complication rates, tolerability of early feeding (nausea or vomiting or need for re-insertion of nasogastric tube), duration of post-operative ileus and length of stay (LOS) in the hospital.

The included studies used different definitions of early feeding: most studies started feeding on the day of surgery or first post-operative day and most studies allowed solid food on the second post-operative day. The content of feeding and criteria for starting and progression varied. In some studies early feeding was part of a multi-modal approach (involving early mobilisation, predominantly non-opioid epidural analgesia and patient education); other studies used a conventional peri-operative approach.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The validity of randomised controlled trials (RCTs) and controlled clinical trials (CCTs) was assessed by considering performance bias, attrition bias, detection bias and the reporting of statistics. In addition, RCTs were assessed for the adequacy of randomisation methods.

The authors did not state how the validity assessment was performed.

Data extraction
For each study, the main outcome measures were classified as reduced, not reduced or no difference between treatment groups, and were presented in tabular format.

The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
The studies were grouped by outcome and combined in a narrative. Differences between the studies were discussed.
Results of the review
Fifteen studies (n=1,352 including 935 patients who received early feeding) were included: 5 RCTs (n=598), 2 non-randomised CCTs (n=68) and 8 observational or descriptive studies.

Two of the 5 RCTs reported adequate randomisation methods. None of the RCTs reported blinding. Three RCTs reported withdrawals and gave reasons and two reported no drop-outs. All RCTs analysed data on an intention-to-treat basis. Both CCTs showed baseline differences between the treatment groups but reported reasons for withdrawals.

Safety.
The studies used different definitions of complication rates and measured them over different time periods (from initial hospital stay to 30-day out-patient follow-up). Eight studies (including all 5 RCTs and both CCTs) reported no difference in overall complication rates between patients receiving early compared with traditional feeding. Complications were experienced by 12.5% of all patients (117 out of 935; the rates ranged from 0 to 25%) and included pneumonia (7 cases), anastomotic dehiscence (8 cases), intestinal obstruction (11 cases), prolonged ileus (2 cases) and death unrelated to early feeding (2 patients).

Tolerability.
Six studies reported no difference in nausea or vomiting between patients receiving early compared with traditional feeding; 2 RCTs reported a significant increase in nausea and vomiting associated with early feeding. The overall incidence of persistent nausea or vomiting was 14%. Rates of toleration of early feeding (defined variably) ranged from 73 to 100%.

Duration of post-operative ileus.
The duration of post-operative ileus ranged from 1 to 4 days among patients receiving early feeding. Three studies (all using multi-modal approaches) reported a significant decrease in the time to first bowel movement for patients receiving early compared with traditional feeding, while 3 studies (all using conventional peri-operative approaches) reported no difference.

LOS in the hospital.
Five studies (all using multi-modal approaches but only one was an RCT) reported a significant decrease in the duration of hospitalisation among patients receiving early feeding; the LOS ranged from 2 days (4 studies) to 12 days (1 study) for early feeding groups and from 12 to 25 days for traditional feeding groups.

Authors' conclusions
There was support for early oral feeding after elective open colorectal surgery. Early feeding was safe and well-tolerated and multi-modal protocols may reduce the duration of ileus and hospital stay.

CRD commentary
The review question was stated clearly and inclusion criteria were defined. Several relevant sources were searched but no attempts were made to minimise publication or language bias. The methods used to select the studies, assess validity and extract the data were not described, so it is not known whether any efforts were made to reduce reviewer error and bias. The validity of RCTs and CCTs was systematically assessed and the results reported. A narrative synthesis was appropriate in view of the variability among studies, and differences between the studies were discussed. However, consistent reporting of results according to study design might have enabled a clearer understanding of the strength of the evidence to emerge. The lack of reporting of review methods and the reliance upon non-randomised studies make it difficult to be confident that the conclusions are reliable.

Implications of the review for practice and research
Practice: The authors stated that nurses working in units where traditional care of post-operative colorectal surgery patients is practised can discuss evidence about the safety and tolerability of early feeding, encourage the development of clinical guidelines that incorporate early feeding and which emphasise patient education, and participate in
Research: The authors stated the need for nursing and multidisciplinary research to examine the patients' well-being, experience and satisfaction with early feeding and early discharge, the attitude of health professionals towards early feeding and multi-modal care, and the economic costs of multi-modal care. Research is required to evaluate the effects of early mobilisation on ileus and to compare early oral and nasojejunal feeding.

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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.