



Cochrane
Library

Cochrane Database of Systematic Reviews

Mechanical bowel preparation for elective colorectal surgery (Review)

Güenaga KF, Matos D, Wille-Jørgensen P

Güenaga KF, Matos D, Wille-Jørgensen P.

Mechanical bowel preparation for elective colorectal surgery.

Cochrane Database of Systematic Reviews 2011, Issue 9. Art. No.: CD001544.

DOI: 10.1002/14651858.CD001544.pub4.

www.cochranelibrary.com

[Intervention Review]

Mechanical bowel preparation for elective colorectal surgery

Katia F Güenaga¹, Delcio Matos², Peer Wille-Jørgensen³

¹Santos, Brazil. ²Gastroenterological Surgery, UNIFESP - Escola Paulista de Medicina, São Paulo, Brazil. ³Department of Surgical Gastroenterology K, Bispebjerg Hospital, Copenhagen NV, Denmark

Contact address: Katia F Güenaga, Rua Ministro João Mendes, 60/31, Santos, São Paulo, 11040-260, Brazil. kfg012@terra.com.br.

Editorial group: Cochrane Colorectal Cancer Group.

Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 9, 2011.

Review content assessed as up-to-date: 25 June 2011.

Citation: Güenaga KF, Matos D, Wille-Jørgensen P. Mechanical bowel preparation for elective colorectal surgery. *Cochrane Database of Systematic Reviews* 2011, Issue 9. Art. No.: CD001544. DOI: 10.1002/14651858.CD001544.pub4.

Copyright © 2011 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

The presence of bowel contents during colorectal surgery has been related to anastomotic leakage, but the belief that mechanical bowel preparation (MBP) is an efficient agent against leakage and infectious complications is based on observational data and expert opinions only.

An enema before the rectal surgery to clean the rectum and facilitate the manipulation for the mechanical anastomosis is used for many surgeons. This is analysed separately

Objectives

To determine the security and effectiveness of MBP on morbidity and mortality in colorectal surgery.

Search methods

Publications describing trials of MBP before elective colorectal surgery were sought through searches of MEDLINE, EMBASE, LILACS, IBECs and *The Cochrane Library*; by handsearching relevant medical journals and conference proceedings, and through personal communication with colleagues.

Searches were performed December 1, 2010.

Selection criteria

Randomised controlled trials (RCTs) including participants submitted for elective colorectal surgery. Eligible interventions included any type of MBP compared with no MBP. Primary outcomes included anastomosis leakage - both rectal and colonic - and combined figures. Secondary outcomes included mortality, peritonitis, reoperation, wound infection, extra-abdominal complications, and overall surgical site infections.

Data collection and analysis

Data were independently extracted and checked. The methodological quality of each trial was assessed. Details of randomisation, blinding, type of analysis, and number lost to follow up were recorded. For analysis, the Peto-Odds Ratio (OR) was used as the default (no statistical heterogeneity was observed).

Main results

At this update six trials and a new comparison (Mechanical bowel preparation versus enema) were added. Altogether eighteen trials were analysed, with 5805 participants; 2906 allocated to MBP (Group A), and 2899 to no preparation (Group B), before elective colorectal surgery.

For the comparison **Mechanical Bowel Preparation Versus No Mechanical Bowel Preparation** results were:

1. Anastomotic leakage for low anterior resection: 8.8% (38/431) of Group A, compared with 10.3% (43/415) of Group B; Peto OR 0.88 [0.55, 1.40].
2. Anastomotic leakage for colonic surgery: 3.0% (47/1559) of Group A, compared with 3.5% (56/1588) of Group B; Peto OR 0.85 [0.58, 1.26].
3. Overall anastomotic leakage: 4.4% (101/2275) of Group A, compared with 4.5% (103/2258) of Group B; Peto OR 0.99 [0.74, 1.31].
4. Wound infection: 9.6% (223/2305) of Group A, compared with 8.5% (196/2290) of Group B; Peto OR 1.16 [0.95, 1.42].

Sensitivity analyses did not produce any differences in overall results.

For the comparison **Mechanical Bowel Preparation (A) Versus Rectal Enema (B)** results were:

1. Anastomotic leakage after rectal surgery: 7.4% (8/107) of Group A, compared with 7.9% (7/88) of Group B; Peto OR 0.93 [0.34, 2.52].
2. Anastomotic leakage after colonic surgery: 4.0% (11/269) of Group A, compared with 2.0% (6/299) of Group B; Peto OR 2.15 [0.79, 5.84].
3. Overall anastomotic leakage: 4.4% (27/601) of Group A, compared with 3.4% (21/609) of Group B; Peto OR 1.32 [0.74, 2.36].
4. Wound infection: 9.9% (60/601) of Group A, compared with 8.0% (49/609) of Group B; Peto OR 1.26 [0.85, 1.88].

Authors' conclusions

Despite the inclusion of more studies with a total of 5805 participants, there is no statistically significant evidence that patients benefit from mechanical bowel preparation, nor the use of rectal enemas. In colonic surgery the bowel cleansing can be safely omitted and induces no lower complication rate. The few studies focused in rectal surgery suggested that mechanical bowel preparation could be used selectively, even though no significant effect was found. Further research on patients submitted for elective rectal surgery, below the peritoneal verge, in whom bowel continuity is restored, and studies with patients submitted to laparoscopic surgeries are still warranted.

PLAIN LANGUAGE SUMMARY

Mechanical bowel preparation for elective colorectal surgery may not improve outcome for patients

Until recently it was thought that vigorous preoperative mechanical cleansing of the bowel (mechanical bowel preparation), together with the use of oral antibiotics, reduced the risk of septic complications after non-emergency (elective) colorectal operations. Mechanical bowel preparation was performed routinely prior to colorectal surgery until 1972, when this procedure started to be questioned. Well designed clinical trials were published, and their results caused some colorectal surgeons to doubt this traditional belief.

This review has identified all known trials that compared any kind of mechanical bowel preparation with no preparation (**Comparison 1**) and mechanical bowel preparation with rectal enema (**Comparison 2**) in patients submitted to elective colorectal surgery. Five new trials have been included in this third update of the review, bringing the total number of included trials to 18 (5805 participants). Analysis of these 18 trials showed no statistically significant differences in how well the three groups of patients (mechanical bowel preparation group, no preparation group and rectal enemas) did after surgery in terms of leakage at the surgical seam of the bowel ends, mortality rates, peritonitis, need for reoperation, wound infection, and other non-abdominal complications. Consequently, there is no evidence that mechanical bowel preparation improves the outcome for patients. Further research on mechanical bowel preparation or enemas versus no preparation in patients submitted for elective rectal surgery and laparoscopic colorectal surgery is warranted.