Is rectal washout effective for preventing localized recurrence after anterior resection for rectal cancer?

Constantinides VA, Cheetham D, Nicholls RJ, Tekkis PP

CRD summary
This review assessed the effectiveness of rectal washout in reducing local recurrence after resection for rectal cancer. Five small, non-randomized studies were included. Despite some weaknesses in the review process, the authors’ conclusion, that the benefits of rectal washout remain unclear and that a large randomized controlled trial is needed, reflects the limitations of the available data.

Authors’ objectives
To assess the effectiveness of rectal washout in reducing local recurrence after anterior resection for rectal cancer.

Searching
MEDLINE, EMBASE and the Cochrane Library were searched (1980 to 2007). Search terms were reported. The "related articles" function was also used.

Study selection
Studies that compared the use of rectal washout with no washout, in patients undergoing rectal cancer resection, were eligible for inclusion. Studies had to clearly report surgery type (anterior resection, or sphincter sparing surgery). Included studies were required to report at least one of the following outcome measures: localized recurrence during follow-up (primary outcome); death related to local recurrence, or five year survival rate (secondary outcomes); positive cytology from donut wash after stapled anastomosis (surrogate outcome). For duplicate publications, the most recent report was included.

Where reported, the mean age of participants ranged from 61 to 73 years; the proportion of female participants ranged from 10% to 38% in the washout groups and from 39% to 52% in the non-washout groups (where reported). The type of washout used varied between studies (details reported in the article). Two out of six included studies reported use of total mesorectal excision.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed study validity.

Data extraction
Data were extracted on the numbers of patients in each group with each reported outcome measure. These data were used to calculate odds ratios (ORs) with 95% confidence intervals (CIs).

Two reviewers independently extracted data. There was 100% agreement between reviewers.

Methods of synthesis
Pooled odds ratios and 95% confidence intervals were calculated using the Mantel-Haenszel random-effects model. Where studies had zero events in one group, a correction factor of 0.5 was added to each cell of the 2x2 table for that study; studies with zero events in both groups were excluded from the analysis.

Heterogeneity was assessed using $\chi^2$ and $I^2$ tests, and further explored using comparative analyses (random-effects and fixed-effect models) and two subgroup analyses (studies that used total mesorectal excision, and studies that included only patients who had resections with curative intent).

Funnel plots were used to assess publication bias.
Results of the review

Five studies (n=432 patients, range 20 to 141) were included in the review; 176 participants were included in the washout group and 256 in the non-washout group. Three studies were prospective, non-randomised studies, one study was retrospective and one study uncertain (prospective or retrospective). All studies reported groups that were matched for age, gender (although the reported % female participants appeared unbalanced for two studies) and Dukes stage. Three studies reported groups matched for tumour grade, four studies reported matching for distal resection margins, and two studies reported matching for radial resection margins. Follow-up periods ranged from 33 to 60 months.

There was no significant difference in local recurrence between washout and non-washout groups, based on four studies with no evidence of statistical heterogeneity. Subgroup analyses, of studies that used total mesorectal excision, and studies that included only patients who had resections with curative intent, also showed no significant differences in local recurrence.

One study reported deaths related to local recurrence of 2.2% in the washout group and 3.9% in the non-washout group.

Two studies reported donut cytology, with 6.3% of the washout group with positive cytology and 14.7% positive cytology in the non-washout group (OR 0.21, 95% CI 0.00 to 38.32); no statistically significant difference between the groups. There was evidence of between study heterogeneity (p=0.005).

Authors’ conclusions

The benefits of rectal washout remained unclear.

CRD commentary

The review defined a clear objective and specified appropriate inclusion criteria. A number of sources were searched for relevant studies and there were no apparent language restrictions (the authors reported translation of Japanese studies). Formal assessment found no evidence of publication bias. Measures to minimise error and/or bias were applied to the data extraction process, but it was unclear whether similar measures were applied to study selection.

The authors did not report any assessment of the methodological quality of included studies; all included studies were small non-randomised comparisons and the authors stated that the meta-analysis was likely to be underpowered. Matching of study groups was reported for a number of relevant criteria, but supporting data were only partially reported and, in one case, appeared contradictory.

The meta-analyses reported were broadly appropriate, and the authors' conclusion reflects the data presented.

Implications of the review for practice and research

Practice: The authors stated that, although its exact benefits are unclear, rectal washout may be used because it adds little time to the overall operative time and is relatively risk-free.

Research: The authors stated that a properly conducted randomized controlled trial, with an appropriate sample size and follow-up period, is required to determine the effectiveness of rectal washout. Effectiveness in patients where surgery is conducted with curative intent should also be addressed.

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