Authors' objectives
To assess whether colonoscopic surveillance succeeds in reducing mortality from colon cancer in ulcerative colitis while obviating routine prophylactic colectomy.

Searching
MEDLINE was searched for English language papers published from 1976 (keywords given). Reference lists of included studies were also searched.

Study selection
Study designs of evaluations included in the review
The study designs included were historical cohort, cross-sectional, and prospective cohort.

Specific interventions included in the review
Colonoscopy every 1 to 3 years.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Patients with extensive ulcerative colitis were included.

Outcomes assessed in the review
Removal of colon with confirmed high grade dysplasia; patients with cancer (Dukes stages A/B and C/D).

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The studies were considered in accordance with the Canadian Task Force classification of study design. The authors do not state how the papers were assessed for validity, or how many of the authors performed the validity assessment.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

Methods of synthesis
How were the studies combined?
The effectiveness of colonoscopic surveillance was estimated by combining the following evidence:

- the risk of developing colorectal cancer between 10 and 25 years in patients with inflammatory bowel disease; and
- the estimated proportion of curable cancers identified by colonoscopic surveillance in all patients with cancers.
The absolute risk reduction and numbers-needed-to-treat were calculated.

How were differences between studies investigated?
The data from North America and Europe were considered separately.

**Results of the review**

One historical cohort study (186 patients), 1 cross-sectional study (41 patients) and 10 prospective cohort studies (1,413 patients) were included.

According to five prospective population-based studies, a patient with extensive ulcerative colitis has roughly a 12% chance of developing colorectal cancer between 10 and 25 years.

Combining the data from the 10 prospective cohort studies, among 1,413 patients the percentage of advanced colon cancers with bad outcomes is reduced by surveillance to 25% (European data only) or to 35% (all data).

For combined data, the number-needed-to-treat was 33, i.e. 33 patients would have to be under regular surveillance for 15 years to prevent one incurable cancer; this would entail 250 colonoscopies over all.

For European data only, the number-needed-to-treat was 24; this would entail 192 colonoscopies.

**Authors' conclusions**

There is conflicting, rather than consistent, evidence that colonoscopic surveillance of patients with extensive ulcerative colitis reduces the mortality from colon cancer compared with standard clinical care. Under the most rigorous surveillance regimens, a patient's risk of dying of colon cancer will be reduced, but not abolished, by reliance on colonic mucosal dysplasia as a marker of precancer or early cancer.

**CRD commentary**

This review was based on comparatively weak evidence, which the authors acknowledged and considered when drawing the conclusions. The selection of the participants and outcomes was appropriate and the results were clearly presented in terms of the numbers-needed-to-treat. However, the findings were based solely on observational rather than experimental studies, so the results could be influenced by confounding variables. In addition, because the searches were limited to one database (plus citations) and confined to English language papers, other eligible studies may have been missed. The lack of information about the review methodology (decisions about relevance, judgements about validity and data-extraction) means it is not possible to assess how rigorous the review process has been.

**Implications of the review for practice and research**

The authors stated 'A better screening test for colon cancer arising in the setting of ulcerative colitis is badly needed. Until a more sensitive and specific premalignant marker is available, it is reasonable to offer colonoscopic surveillance with biopsy for dysplasia to patients with long standing ulcerative colitis as a means of managing their cancer risk. The imperfections and inconveniences must be acknowledged, however, and allowed to influence the consideration of colectomy'.

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