Incidental lesions found on CT colonography: their nature and frequency
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CRD summary
This review investigated the nature and frequency of incidental extracolonic lesions found during CT colonography. The authors concluded that the number of extracolonic lesions detected was high and that colonography may be important for detecting early cancers other than colon cancers. The authors’ conclusions are likely to be reliable, although they need to be confirmed by larger, comprehensive primary studies.

Authors’ objectives
To review the nature and frequency of incidental lesions found in the course of computed tomographic (CT) colonography conducted for the purpose of diagnosis or screening.

Searching
PubMed, EMBASE, ISI Web of Knowledge, ScienceDirect and the Cochrane Library were searched from inception to March 2004 with no language restrictions. Seven specified journals were handsearched (from January 2003 to February 2004) as well as a range of conference proceedings (from 2000 to 2003). The reference lists of relevant papers were also checked.

Study selection
Study designs of evaluations included in the review
Screening or diagnostic studies were eligible for inclusion.

Specific interventions included in the review
Clinical studies of CT colonography were eligible for inclusion. The majority of the included studies assessed diagnostic colonographies; the remaining studies dealt with colonography as a screening test.

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
No inclusion criteria relating to study population were specified. Nearly all of the included studies were of symptomatic patients rather than those with a population risk for colorectal cancer. The median age of patients in those included studies that did not have frail elderly participants ranged from 58 to 71 years. The median age of participants in included studies of the frail elderly ranged from 76 to 84 years.

Outcomes assessed in the review
Studies reporting extracolonic and incidental findings detected during colonography were eligible for inclusion. The total number of extracolonic lesions, as well as the number of lesions classified as ‘important’ by the primary study investigator, and the number of early (N0M0) cancers and abdominal aortic aneurysms detected were of interest. Other outcomes of interest in the review were the number of patients requiring immediate treatment and the number of incidental lesions at long-term follow-up. In all of the included studies a lesion was classified as ‘important’ based on whether further investigation was considered necessary.

How were decisions on the relevance of primary studies made?
One reviewer screened the titles and abstracts for potentially relevant studies. These were then assessed for eligibility by the same reviewer and checked by a second.
Assessment of study quality
The studies were assessed as to whether they clearly described the population; whether the investigator specified that consecutive cases were studied; whether the data collection was prospective or retrospective; and whether the colonography was being conducted for diagnostic or screening purposes. Two reviewers independently assessed study validity, and any disagreements were resolved by consultation with a third reviewer.

Data extraction
Two reviewers independently extracted the data. Both the number of incidental lesions and the number of patients with a lesion were recorded. The proportion of participants with each of the outcomes of interest was calculated for individual studies.

Methods of synthesis
How were the studies combined?
The studies were grouped based on whether they were available as full papers or abstract only and whether or not they investigated a frail elderly population, and were discussed in a narrative synthesis. The overall proportion of participants with each of the outcomes of interest was reported.

How were differences between studies investigated?
Differences between the studies were discussed in the narrative synthesis.

Results of the review
Seventeen studies (n=3,488) were included, 14 of which were clearly prospective.

Twelve studies were available as full papers, of which nine (n=2,565) did not include frail elderly patients and three (n=350) did. Five studies (n=573) were available as conference abstracts only. Six studies clearly stated that consecutive cases were studied. Most of the studies were small and only three included more than 200 patients.

Extracolonic abnormalities were common. In total, 40% of patients were recorded as having incidental extracolonic lesions: 36% in the studies that did not include frail elderly, 65% in the studies available as abstracts only, and 29% in the studies that did include frail elderly patients. As a proportion of the people screened, the total abnormalities were 58%, 66% and 26%, respectively, in the three groups of studies. Where the information was available (n=2,787 patients), 10.5% were classified by the primary study authors as being 'important' lesions. The proportion of lesions that were of confirmed importance was also reported: 2.7% (81 out of 3,005) of lesions were cancers and 0.9% (30 out of 3,305) were aortic aneurysms. Overall, 13.8% (188 out of 1,362) of patients underwent further investigations and 0.8% (17 out of 2,237) received immediate treatment.

Cost information
An estimate of additional cost contingent on discovery of an incidental lesion was reported in 2 studies. This ranged from $180 to $23,380.

Authors' conclusions
There were a high number of extracolonic findings in all studies. Although only a small proportion was judged 'important', the prevalence of serious lesions outside the colon was higher than in many other screening programmes.

CRD commentary
The review addressed a clear research question using defined inclusion criteria. Several electronic databases were searched and details of the search strategy were provided; this was supplemented by handsearches. There were no language restrictions and the authors made some attempts to locate unpublished studies, thereby reducing the risk of language and publication bias. The review methodology was well described and included measures to avoid the
introduction of bias. The methodological quality of the primary studies was assessed and their limitations discussed. It was appropriate to discuss the findings in a narrative synthesis. The authors’ conclusions are likely to be reliable, though they do need to be confirmed by larger, more comprehensive data sets.

**Implications of the review for practice and research**
Practice: The authors stated that colonography may be an important method for the detection of early cancers other than colon cancers, though the costs of resulting investigations and interventions (including the anxiety and other morbidity associated with the investigation of incidental lesions) also need to be considered.

Research: The authors stated that bigger and more comprehensive data sets are required to confirm the findings.

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