Does this patient have a family history of cancer: an evidence-based analysis of the accuracy of family cancer history

Murff H J, Spigel D R, Syngal S

CRD summary
This meta-analysis included 14 cohort studies that verified the accuracy of self-reported family histories of site-specific cancer. The authors concluded that self-reported family histories are useful for breast and colon cancer in first-degree relatives, but the quality of family histories for other cancers and second-degree relatives is more variable. The search was limited to one database.

Authors' objectives
To assess the accuracy of self-reported information about people's family history of cancer.

Searching
Two authors searched MEDLINE independently for studies published in English between 1966 and June 2004; the search terms were reported. Such terms included the names of cancers commonly encountered in primary care whose management may be altered based on information about family history. The reference lists of identified studies were checked for additional research.

Study selection
Study designs of evaluations included in the review
It appeared that studies of any design were eligible for inclusion. The included studies were diagnostic cohort studies, with a family history taken first, followed by checking against the reference standard.

Specific interventions included in the review
Studies were eligible for inclusion if they asked people to self-report the history of site-specific cancer in their family and then followed up to check the accuracy of self-reported information. The focus appeared to be on family history taking in primary care settings. To be eligible for inclusion, the studies had to check the disease status or cause of death for family members identified as having cancer (positive family history) and also check the disease status or cause of death of all relatives reported as not having cancer (negative family history).

Reference standard test against which the new test was compared
Studies were eligible for inclusion if they contained a criterion standard. The standard for assessing both positive and negative family history of cancer was verification from each identified relative's medical records, death certificate, doctors, or disease registries to see whether they did or did not have site-specific cancer.

Participants included in the review
Studies of people providing a family history of site-specific cancer were eligible, whether or not the participants providing the family history had cancer. The authors appeared to focus on breast cancer, colon cancer, ovarian cancer, prostate cancer, endometrial cancer and uterine cancer.

Outcomes assessed in the review
Studies that provided information about the precision (reproducibility of measurement) and/or accuracy of family history information for specific cancers were eligible. Studies reporting data for all cancer types aggregated into one measure were excluded. In the review, the data were expressed as sensitivity and specificity values and likelihood ratios (LRs).

How were decisions on the relevance of primary studies made?
The authors selected studies for full text review after examining abstracts. It would appear that two authors performed the selection.
Assessment of study quality
The authors used criteria from published articles to assess study quality and assign a quality score. They did not report in detail the criteria used to generate the score. The authors did not state how the papers were assessed for quality, or how many reviewers performed the quality assessment.

Data extraction
The authors extracted data and calculated sensitivity and specificity estimates and the LR$s$, with confidence intervals (CIs), of a positive or negative report based on raw data from the original articles. They did not report how many reviewers extracted the data.

Methods of synthesis
How were the studies combined?
The authors used random-effects summary measures to combine the data.

How were differences between studies investigated?
Outcome statistics were calculated separately for people with a personal history of cancer versus those without a personal history of cancer. The authors also differentiated between first- and second-degree relatives. They did not report a statistical method of assessing heterogeneity but described study characteristics in narrative and tabular form.

Results of the review
Fourteen cohort studies were included in the review. The authors did not report the number of participants.

For people with a personal history of cancer, the LR of a positive self-reported family history of cancer among a first-degree relative was 23.0 (95% CI: 8.1, 64.0) for colon cancer, 41.0 (95% CI: 23.0, 75.0) for breast cancer, 20.0 (95% CI: 4.3, 89.0) for endometrial cancer, 44.0 (95% CI: 15.0, 132.0) for ovarian cancer, and 24.0 (95% CI: 2.3, 262.0) for prostate cancer.

For people with a personal history of cancer, the LR of a negative self-reported family history of cancer among a first-degree relative was 0.29 (95% CI: 0.13, 0.67) for colon cancer, 0.07 (95% CI: 0.03, 0.13) for breast cancer, 0.55 (95% CI: 0.35, 0.86) for endometrial cancer, 0.21 (95% CI: 0.12, 0.37) for ovarian cancer, and 0.25 (95% CI: 0.16, 0.39) for prostate cancer.

For people without a personal history of cancer, the LR of a positive self-reported family history of cancer among a first-degree relative was 23.0 (95% CI: 6.4, 81.0) for colon cancer, 8.9 (95% CI: 5.4, 15) for breast cancer, 14.0 (95% CI: 2.2, 83.4) for endometrial cancer, 34.0 (95% CI: 5.7, 202.0) for ovarian cancer, and 12.3 (95% CI: 6.5, 24.0) for prostate cancer.

For people without a personal history of cancer, the LR of a negative self-reported family history of cancer among a first-degree relative was 0.25 (95% CI: 0.10, 0.63) for colon cancer, 0.20 (95% CI: 0.08, 0.49) for breast cancer, 0.68 (95% CI: 0.31, 1.52) for endometrial cancer, 0.51 (95% CI: 0.13, 2.10) for ovarian cancer, and 0.32 (95% CI: 0.18, 0.55) for prostate cancer.

Authors’ conclusions
Self-reported family histories of site-specific cancer appear accurate for breast and colon cancer in first-degree relatives. Reports for other cancers and second-degree relatives are more variable in accuracy.

CRD commentary
This article included a clear research question and defined reference criteria. However, the authors searched only one database and restricted studies to those published in English. Thus, not all relevant papers might have been included in
the review. Some of the reporting of the methodology was not entirely clear. For instance, it would appear that primary care screening was the focus but this was not explicitly stated. Also, despite the mention of 'prespecified' cancers, the search terms allowed for both broad and specific searches. It therefore appears that only certain cancers were eligible, but this was not explicit. There was also little detail on the methods used to assess relevance and quality. This makes it difficult to understand what steps were taken to minimise bias and to consider how much weight to place upon the findings.

The general method of analysis was similar to that used in other analyses of this nature, but the authors did not provide full details about study heterogeneity or what might have been done to address this. Appropriately, they divided the findings into those based on first- and second-degree relatives and those in people with and without a personal history of cancer.

Overall, the findings supported the authors' general conclusions, but the limited search strategy and lack of details about assessment procedures make it difficult to judge the rigor of these conclusions.

Implications of the review for practice and research

Practice: The authors concluded that self-reported family cancer histories for first-degree relatives are useful in breast and colon cancer and may not require further substantiation. Negative family history reports for ovarian and endometrial cancers may be less useful.

Research: The authors did not state any implications for further research.

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