Total or subtotal hysterectomy for benign uterine diseases: a meta-analysis

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CRD summary
The author concluded that total hysterectomy reduces prolapse and urinary incontinence, while operation time, bleeding and post-operative complications occur less often with subtotal hysterectomy. These conclusions should be interpreted with caution given the possibility of language and publication bias and failure to appropriately evaluate study quality.

Authors' objectives
To compare the efficacy of total and subtotal hysterectomy for benign uterine diseases.

Searching
MEDLINE, EMBASE, the Cochrane CENTRAL Register and COSMOS were searched up to July 2005 with the search term 'hysterectomy'. The bibliographies of retrieved articles were screened for additional relevant studies, and experts in the field were contacted to identify conference abstracts.

Study selection
Study designs of evaluations included in the review
Randomised clinical trials (RCTs) and observational studies were eligible for the review.

Specific interventions included in the review
Studies comparing total and subtotal abdominal hysterectomy were eligible for inclusion. Studies of post-partum hysterectomy were excluded.

Participants included in the review
Studies of women with benign uterine diseases were eligible for inclusion.

Outcomes assessed in the review
Studies had to provide data on well-defined outcome measures to be included in the review. The outcomes evaluated were urinary incontinence assessed by questionnaires, peri- and post-operative complications, operation time, quality of life, constipation, prolapse, sexual functioning, pelvic pain and peri-operative bleeding.

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

Assessment of study quality
The method of randomisation, blinding, and sample size calculation were considered. The author did not state how many reviewers performed the validity assessment.

Data extraction
The author did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data were extracted as odds ratios (ORs) with 95% confidence intervals (CIs) for dichotomous outcomes, and as mean differences with standard errors for continuous outcomes.

Methods of synthesis
How were the studies combined?
Pooled ORs with 95% CIs were calculated for dichotomous variables, and weighted mean differences (WMDs) with standard errors for continuous variables. In case of statistical heterogeneity, the data were presented in the narrative.

How were differences between studies investigated?
Heterogeneity was evaluated by inspecting the forest plot and by using the chi-squared test and the I-squared statistic. The data were pooled separately for RCTs and observational studies.
Results of the review

Twenty-four studies were included in the review: 4 RCTs reported in 8 publications (n=755) and 11 observational studies reported in 16 publications (number of participants unclear). The sample sizes ranged from 22 to 319 in the RCTs and from 100 to 678 in the observational studies.

Two RCTs reported blinding and sample size calculations and three reported the method of randomisation.

Outcomes favouring total hysterectomy.

Urinary incontinence (4 RCTs, 9 observational studies): overall, no difference in urinary incontinence was found between total and subtotal hysterectomy (OR 1.15, 95% CI: 0.93, 1.43); there was some evidence of statistical heterogeneity (p=0.09; I-squared 37.6%). The subgroup analysis limited to the 4 RCTs showed a reduced risk of incontinence with total hysterectomy (OR 1.73, 95% CI: 1.10, 2.73).

Prolapse (2 RCTs, 3 observational studies): subtotal hysterectomy carried a higher risk of prolapse (OR 4.54, 95% CI: 1.53, 13.47).

Cervical stump problems (1 RCT, 6 observational studies): these occurred at frequencies ranging from 5 to 22% in the group of subtotal hysterectomy. Three studies suggested a lower rate of such complications with total hysterectomy.

Outcomes favouring subtotal hysterectomy.

Operation time (3 RCTs, 2 observational studies): this was on average 12.59 minutes shorter (95% CI: 9.40, 15.78) with subtotal hysterectomy than with total hysterectomy.

Peri-operative bleeding (3 RCTs, 2 observational studies): subtotal hysterectomy was associated with less peri-operative bleeding (WMD -83.27, 95% CI: -116.44, -50.09).

Peri- and post-operative complications (3 RCTs, 6 observational studies): subtotal hysterectomy was associated with lower peri- and post-operative complications (OR 0.69, 95% CI: 0.56, 0.86). However, there was strong evidence of heterogeneity (p=0.0003; I-squared 72.9%).

All other evaluated outcomes (lower urinary tract symptoms, quality of life, psychiatric symptoms, constipation, pelvic pain and sexual function) were comparable between the treatment groups.

Authors' conclusions

Total hysterectomy reduces the incidence of urinary incontinence, prolapse and cervical stump problems in comparison with subtotal hysterectomy, which results in shorter operation time, less peri-operative bleeding and fewer peri- or post-operative complications.

CRD commentary

This review addressed a well-defined question in terms of the intervention, participants, outcomes and study designs. Two databases and a trials register were searched, and efforts were made to find further information by reviewing reference lists and contact experts in the field, thereby reducing the potential influence of publication bias which was not considered in the report. Some language restrictions were applied as two Polish studies were excluded; this might have introduced language bias into the review. It is unclear whether critical phases of the review process were conducted in duplicate, thus reviewer error and bias might have been introduced. A formal quality assessment was not conducted although some methodological features of the RCTs were assessed; the reliability of the studies, in particular the observational studies, therefore remains unclear. The relatively high number of outcomes evaluated and the possibility of spurious findings need consideration. There was also little detail about the characteristics of the study populations, so it is difficult to assess the generalisability of the results. The author's conclusions are supported by the data presented, but limitations of the review, in particular the possibility of language and publication bias and failure to appropriate evaluate study quality, mean that these conclusions should be interpreted with some degree of caution.
Implications of the review for practice and research
Practice: The author stated that total hysterectomy with proper antibiotic prophylaxis is recommended.

Research: The author stated that further RCTs with a long follow-up are needed to clarify the role of total versus subtotal hysterectomy.

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