Radical trachelectomy versus radical hysterectomy for the treatment of early cervical cancer: a systematic review
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CRD summary
The authors concluded that the efficacy and safety of fertility-sparing surgery using radical trachelectomy was similar to radical hysterectomy for early treatment of cervical cancer, but was associated with reductions in outcomes such as blood loss. Overall, the authors' conclusions should be interpreted with caution given the limitations of the available evidence.

Authors' objectives
To compare the efficacy and safety of radical trachelectomy versus radical hysterectomy for patients with early cervical cancer.

Searching
PubMed, EMBASE, Science Direct, BIOSIS Previews, Chinese Biomedical Database and Chinese National Knowledge Infrastructure were searched between 1994 and November 2010. The Cochrane Library, issue four 2010, was also scanned. Search terms were reported. Reference lists of retrieved articles and proceedings of relevant conferences (not specified) were manually searched for additional studies.

Study selection
Controlled trials that compared fertility-sparing surgery using radical trachelectomy versus radical hysterectomy in the surgical treatment of patients with cervical cancer (International Federation of Gynaecology and Obstetrics stage I-IIA), were eligible. The primary outcomes were oncological outcomes (recurrence, five-year recurrence-free survival rate, five-year overall survival rate and postoperative mortality). Secondary outcomes were operative results (intraoperative and postoperative complications) and obstetric outcomes. Trials of patients with distant metastasis, synchronous malignancy in other organs, serious cardiovascular or respiratory disorders, hepatic or renal failure and patients who had received pre-operative or postoperative chemotherapy were excluded from the review.

The included trials were conducted in the United States, Canada and France between 1986 and 2007. Where reported (two studies), the mean age of women ranged from 31 to 37 years. A number of patients had capillary lymphatic space invasion or lymph node metastasis. Two trials included women who were eligible for, or sought, preservation of fertility. In one trial, both procedures were laparoscopically assisted. One study assessed other outcomes, such as hospital stay and duration to normal urine residual volumes.

The authors stated that the review was performed in line with the Quality of Reporting of Meta-analyses (QUORUM). Two reviewers screened studies for inclusion.

Assessment of study quality
Methodological quality was assessed according to the Cochrane risk of bias criteria for randomised controlled trials; including randomisation, allocation concealment, blinding, reporting of incomplete outcome data, data free selective reporting, and freedom from other bias. The authors reported that studies of low quality were excluded, but this was not clearly defined.

Two authors assessed study risk of bias with discrepancies resolved through discussion.

Data extraction
Two reviewers independently extracted data on recurrence, five-year recurrence-free survival rate, five-year overall survival rate, postoperative mortality, operation time, blood loss during operation, transfusion, number of harvested lymph nodes, postoperative hospital stay, duration to normal urine residual volumes and obstetric outcomes. Odds ratios (ORs) and 95% confidence intervals calculated for dichotomous data, and mean differences and 95% confidence intervals were calculated for continuous data.
Original authors were contacted for additional data, where necessary Discrepancies were resolved through discussion.

**Methods of synthesis**
A fixed-effect model, or random-effects model where there was evidence of statistical heterogeneity, was used to pool odds ratios and their 95% confidence intervals.

Statistical heterogeneity was assessed using $I^2$. Where there was evidence of statistical heterogeneity, the authors intended to investigate this.

Where pooling of data was not appropriate, due to lack of data on standard deviations, available data were presented as a narrative synthesis and in tables.

**Results of the review**
Three controlled clinical trials (CCTs; 587 participants; range 150 to 257) were included in the review. Mean follow-up ranged from 44 to 113 months (range three to 249 months). None of the trials were randomised or had concealed allocation. Blinding was unclear in all three trials but completeness of data was good. The description of selective reporting and other bias were not reported in detail.

There were no statistically significant differences between procedures for the following outcomes: postoperative recurrence rates; postoperative mortality; five-year recurrence-free survival; five-year overall survival rate; intraoperative complications and postoperative overall complications; postoperative infectious and non-infectious complications. There was evidence of statistical heterogeneity for some outcomes, which the authors suggested was the result of differences in patients age, surgical experience, lack of blinding and lost data.

Findings conflicted for mean operative time and lymph node count. Two trials that assessed blood loss both showed significantly less blood loss with radical trachelectomy ($p<0.001$). Results from single trials, including outcomes for duration to normal urine residual volumes, hospital stay and pregnancy outcomes were reported in the review.

**Authors’ conclusions**
Radical trachelectomy has similar efficacy and safety as radical hysterectomy for early treatment of cervical cancer, but was associated with reduced blood loss, shorter time to resumption of urinary function and shorter postoperative hospital stay.

**CRD commentary**
The review question and supporting inclusion criteria were clearly stated. Several appropriate sources were used to identify relevant publications. Searches of grey literature did not appear to have been undertaken, which meant that potentially relevant data may have been missed. Publication bias was not formally assessed due to the limited number of trials. The authors acknowledged the potential for publication bias. Trial quality was assessed using criteria appropriate to randomised controlled trials (RCTs). Trial quality seemed low, so it may have been more appropriate to use criteria specifically targeted at non-RCTs. Each stage of the review seemed to have been conducted in duplicate, which reduced potential for reviewer error and bias.

There was some evidence of heterogeneity between trials so it may not have been appropriate to pool the trials. The evidence base was limited to three trials with small sample sizes. The authors conclusions regarding the equivalence of the two procedures seems to reflect the limited evidence available, but the statement suggesting improvements in certain outcomes should be interpreted with caution given the limitations of the evidence.

**Implications of the review for practice and research**
*Practice:* The authors stated that a subset of young women with early stage cervical cancer could benefit from a fertility-sparing surgical approach by radical trachelectomy.

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

**Funding**
The National Natural Science Foundation of China.
Bibliographic details

PubMedID
21718255

DOI
10.1111/j.1600-0412.2011.01231.x

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Cervix Uteri /surgery; Female; Humans; Hysterectomy /methods; Treatment Outcome; Uterine Cervical Neoplasms /surgery

AccessionNumber
12011006753

Date bibliographic record published
02/04/2012

Date abstract record published
05/07/2012

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.