CRD summary
This review concluded that laparoscopic surgery appeared to be better than laparotomy, for women with endometrial cancer, particularly with fewer postoperative complications and shorter hospital stay. This was a good systematic review, but the conclusion may overstate the benefits of laparoscopic surgery, since there were no significant differences between the two techniques for the review’s primary outcomes.

Authors’ objectives
To assess the efficacy and safety of laparoscopy, compared with laparotomy, for the treatment of endometrial cancer.

Searching
MEDLINE, EMBASE, BIOSIS Previews, Cochrane Gynaecological Cancer Group Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL), CBM, CNKI, Wanfang Data and VIP were searched for articles from January 1991 to May 2012; search terms were reported. Abstracts from conferences and scientific meetings, and reference lists of identified studies and gynaecological cancer handbooks, were handsearched. Subject experts were contacted to identify further relevant trials.

Study selection
Randomised controlled trials (RCTs) that compared laparoscopic surgery with laparotomy for the treatment of any stage of endometrial cancer were eligible for inclusion. The primary outcomes of interest were three-year overall survival and three-year disease-free survival. The secondary outcomes included three-year local recurrence rate, distant recurrence rate, complications and quality of life.

The included trials were conducted in Europe, the USA, Australasia, Hong Kong or Turkey. The participants in most trials had stage I endometrial carcinoma or endometrial adenocarcinoma; other trials were of patients with stage I to III or stage I to IV endometrial carcinoma. The average age of patients by group ranged from 54 to 67 years. The interventions were laparoscopically assisted vaginal hysterectomy, laparoscopically assisted radical vaginal hysterectomy, or total laparoscopic hysterectomy, versus total abdominal hysterectomy or total radical abdominal hysterectomy. Intervention and control procedures were combined with bilateral salpingo-oophorectomy (with or without pelvic or para-aortic lymphadenectomy, or both).

Two reviewers independently assessed trials for inclusion in the review, with disagreements resolved by discussion.

Assessment of study quality
Two reviewers independently assessed the quality of the included RCTs using the criteria outlined in the Cochrane handbook, including sequence generation, allocation concealment, blinding, selective outcome reporting and completeness of outcome data.

Data extraction
Two reviewers independently extracted hazard ratios for time to event (survival) data, relative risks for dichotomous outcomes, and mean differences for continuous outcomes; disagreements were resolved by discussion. Trial authors were contacted for additional data, where necessary.

Methods of synthesis
In the absence of clinical variation, the results were pooled using random-effects models. Statistical heterogeneity was quantified using I².

Results of the review
Nine RCTs were included (3,616 participants; range 17 to 2,516). Where reported, follow-up ranged from 38 to 79 months. Blinding of participants and caregivers was not possible in any trial. There was evidence of selective reporting.
There was no statistically significant difference in three-year overall survival, between laparoscopic surgery and laparotomy (three RCTs), and in three-year disease-free survival (three RCTs), with no significant heterogeneity.

With laparoscopic surgery, compared with laparotomy, there was a significantly higher intraoperative complication rate (OR 1.35, 95% CI 1.05 to 1.74; eight RCTs), but a significantly lower postoperative complication rate (OR 0.62, 95% CI 0.52 to 0.73; nine RCTs). There was no significant heterogeneity.

The surgery lasted significantly longer with laparoscopy than for laparotomy (MD 32.73 minutes, 95% CI 16.34 to 49.13; four RCTs); there was significant heterogeneity between trials ($I^2=86\%$). The hospital stay was significantly shorter with laparoscopy (MD -3.42 days, 95% CI -3.81 to -3.03; five RCTs); there was significant heterogeneity ($I^2=64\%$).

There was no statistically significant difference in recurrence at three years (four RCTs; $I^2=0$) and in pelvic node yield (five RCTs; $I^2=55\%$). Narrative results were reported for quality of life, which generally favoured laparoscopy over laparotomy.

**Authors’ conclusions**

Laparoscopic surgery appeared to be better than laparotomy, for women with endometrial cancer, particularly with fewer postoperative complications and shorter hospital stay.

**CRD commentary**

The review question and inclusion criteria were clear. An extensive search of relevant sources was undertaken. Study selection, data extraction and validity assessment included sufficient attempts to minimise error and bias. Trial quality was assessed using appropriate criteria and most trials had a low risk of bias; some trials were small. Appropriate methods were used to pool the data and to assess heterogeneity. There was no significant heterogeneity between trials for most outcomes.

In general, this was a good systematic review, but the authors’ conclusions may overstate the benefits of laparoscopic surgery, compared with laparotomy, as there was no significant difference between the two techniques for the primary outcomes of overall survival and disease-free survival. The conclusion also does not reflect the results for intraoperative complications and duration of surgery, which favoured laparotomy.

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

**Practice:** The authors stated that the surgical approach should be decided by the woman after discussion with her surgeon about the relative benefits and risks, which seemed to depend on surgical expertise.

**Research:** The authors stated that more high-quality RCTs were needed to evaluate the short-term outcomes, such as perioperative complications and operative time. Large RCTs were under way to address the long-term overall and disease-free survival, and these results were needed before conclusions could be defined. For meta-analysis of quality of life data, well-validated instruments should be used in a standardised way. RCTs should have the same surgeon or group of surgeons performing the procedures, as their expertise with each approach increased the heterogeneity between trials.

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