Uterine artery embolization versus surgery in the treatment of symptomatic fibroids: a systematic review and metaanalysis
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CRD summary
The authors concluded that uterine artery embolization had short-term advantages over surgery. Benefits were similar at mid- and long-term follow-up except for a high re-intervention rate after uterine artery embolization. Parts of the review were well-conducted, but some caution is needed when interpreting the magnitude of effect in relation to the authors' conclusion.

Authors' objectives
To compare uterine artery embolization with surgery for the treatment of symptomatic fibroids.

Searching
Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE were searched from September 1995 to November 2010. Search terms were reported. mRCT was searched for ongoing randomised controlled trials. Reference lists of relevant studies and reviews were searched and authors were contacted for additional published and unpublished material. There were no language restrictions.

Study selection
Randomised controlled trials (RCTs) that compared uterine artery embolization with surgery (hysterectomy or myomectomy) with follow-up to five years in women with symptomatic uterine fibroids were eligible for inclusion. Outcomes of interest were procedural and postprocedural results, hospital stay, resumption of activities, pain and other symptoms, complications, re-interventions after uterine artery embolization or surgery, haemoglobin level, menopausal status, health-related quality of life (HRQOL) and satisfaction.

Outcome measures and definitions were reported in the paper. Mean age ranged from 32.4 to 46.4 years in the uterine artery embolization group and from 32 to 45.4 years in the surgery group. A large number of studies conducted surgery by laparotomy. Where reported, inclusion criteria for size of uterine fibroids varied from more than 2cm to more than 4cm diameter.

Two reviewers independently selected the trials for inclusion. Agreement was by consensus.

Assessment of study quality
Trial quality was assessed using the Delphi list of randomisation, allocation concealment, baseline comparability of groups, whether eligibility criteria were specified, presentation of confidence intervals, use of intention-to-treat analysis and adequacy of reporting of drop-outs. Assessment of blinding was not appropriate. The scoring was yes or no depending on whether criteria were met.

Two reviewers independently carried out the quality assessment.

Data extraction
Data were extracted to enable calculation of odds ratios (OR) for dichotomous data and mean differences for continuous data, each with 95% confidence intervals (CI). Data were presented at different time points: intra procedural; early post-procedural (first 24 hours, during hospital stay or day one to 30); late procedural (between 30 days and six months); and follow-up at six months, one year, two years, three years, four years and five years.

Two reviewers independently extracted data.

Methods of synthesis
Where more than one data set was available, pooled odds ratios with 95% CIs were calculated for dichotomous outcomes and weighted mean differences (WMDs) with 95% CIs were calculated for continuous outcomes. A fixed-
effect model was used unless statistical heterogeneity (measured with $I^2$) was found in which case a random-effects model was applied.

**Results of the review**

Four trials (515 patients) were included. All trials except one (which failed only on the absence of intention-to-treat analysis) met all the Delphi criteria. Pooled results are presented; other results (including those for intra-procedural outcomes) were reported in the paper.

Statistically significant results in favour of uterine artery embolization were reported for early procedural results: need for blood transfusion (OR 0.05, 95% CI 0.01 to 0.42; two trials, $I^2=0\%$), length of hospital stay (WMD -3.27, 95% CI -3.77 to -2.77; two trials, $I^2=56\%$) and pain during the first 24 hours (WMD -1.47, 95% CI -2.15 to -0.78; two trials, $I^2=0\%$). There was no statistically significant difference between uterine artery embolization and surgery for early postprocedural complications (two trials, $I^2=82\%$).

For late post-procedural results, a statistically significant higher rate of readmission (between 30 days and six months) was reported for the uterine artery embolization group (OR 6.00, 95% CI 1.14 to 31.53; two trials, $I^2=63\%$). There was no difference between groups for unscheduled visits (two trials, $I^2=0\%$).

At follow-up (six months), serum follicle stimulating hormone (FSH) levels were similar between groups (two trials, $I^2=61\%$). At one year follow-up, there were statistically more re-interventions in the uterine artery embolization group (OR 5.78, 95% CI 2.14 to 15.58; two trials, $I^2=9\%$). There were no statistically significant differences between groups for serum FSH levels (two trials, $I^2=0\%$) and HRQOL (two trials, $I^2=0\%$) at one year follow-up and there were no difference on any measure at two years.

At five years, uterine artery embolization was associated with significantly more re-interventions than surgery (OR 5.41, 95% CI 2.48 to 11.81; two trials, $I^2=61\%$).

**Authors' conclusions**

Uterine artery embolization had short-term advantages over surgery. On the mid- and long-term, the benefits were similar except for a higher re-intervention rate after uterine artery embolization.

**CRD commentary**

The review question was clear. Inclusion criteria were specified in sufficient detail to enable replication. The search strategy had a good coverage of data sources and attempts were made to minimise language and publication biases. The review process included attempts to minimise error and bias. Application of a relevant quality assessment criteria indicated that the included studies were largely reliable. Study details were presented and full results were reported.

Statistical pooling was limited and based on only two trials in each analysis. Some analyses had high statistical heterogeneity, which suggested that the fixed-effect model might not have been the most appropriate method. It appeared the authors failed to acknowledge in their conclusion the high late post-procedural readmission rate after uterine artery embolization.

Parts of the review were well-conducted, but some caution is needed when interpreting the magnitude of effect in relation to the authors' conclusion.

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

The authors did not state any implications for practice and research.

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Not stated.

**Bibliographic details**

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.