**Uterine artery embolisation or hysterectomy for the treatment of symptomatic uterine fibroids: a cost-utility analysis of the HOPEFUL study**


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**Record Status**
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

**CRD summary**
This study compared the cost-effectiveness of uterine artery embolisation (UAE) versus hysterectomy for the treatment of women with symptomatic fibroids. The authors concluded that UAE was the less costly option and could be highly cost-effective for women who preferred to keep their uterus. Despite some limitations to the clinical data, the authors presented a reasonably transparent analysis and their conclusions appear to be appropriate.

**Type of economic evaluation**
Cost-utility analysis

**Study objective**
This study compared the cost-effectiveness of uterine artery embolisation (UAE) versus hysterectomy in women with symptomatic uterine fibroids.

**Interventions**
UAE, which was a new procedure that was less invasive than hysterectomy and conducted using a local anaesthetic, was compared with hysterectomy, which was the gold standard of care in the authors' setting.

**Location/setting**
UK/secondary care.

**Methods**

**Analytical approach:**
A probabilistic decision model was used to compare the effectiveness and costs of the two treatment options. The time horizon of the analysis was 12 years. The authors reported that the perspective was that of the UK National Health Service (NHS).

**Effectiveness data:**
The effectiveness data were derived from a published multi-centre retrospective cohort study. The details of the study were adequately reported. The main clinical parameters included the probability of technical failure of the UAE, general adverse events associated with UAE, intervention-related complications, and additional procedures necessary in the case of incomplete fibroid treatment.

**Monetary benefit and utility valuations:**
The utility values were obtained from a published randomised controlled trial which compared UAE with hysterectomy. In that trial, the patients’ utilities were evaluated using the European Quality of life (EQ-5D) questionnaire.

**Measure of benefit:**
The authors used quality-adjusted life-years (QALYs) as the measure of benefit. They were discounted at an annual rate of 3.5%.

**Cost data:**
The cost categories included the costs of the surgical interventions, complications, and additional procedures. The unit costs and resource quantities were reported separately and in great detail. The cost data were mainly obtained from a...
previous study and from a national official source (NHS reference costs), while expert clinical opinion was used when no UK data were available. For complications, the weighted average costs were computed by the authors. All costs were in UK pounds sterling (£), were reported for the price year 2004, and were discounted at an annual rate of 3.5%.

Analysis of uncertainty:
The authors conducted various one-way sensitivity analyses to investigate the structural uncertainty in their model. They tested three assumptions: firstly, that the quality of life was greater with an intact uterus after UAE, than with complete uterus removal in hysterectomy; secondly, that UAE was provided in women aged 30 years; and thirdly, the inclusion of productivity losses, due to treatment, using the human capital approach. In addition, a probabilistic sensitivity analysis was conducted, while the influential parameters were further investigated using an analysis of covariance.

Results
UAE was associated with lower mean costs (£2,536) than hysterectomy (£3,282) and a small reduction in the quality of life (8.203 QALYs, for UAE, compared with 8.241 QALYs, for hysterectomy).

When the quality of life, associated with retaining the uterus, was incorporated in the model, UAE was shown to be the dominant strategy (had lower costs and greater QALYs).

The results were sensitive to the cost of the hysterectomy, UAE, and major or severe complications, and to the utility values of the UAE and hysterectomy.

Authors’ conclusions
The authors concluded that UAE was a less costly treatment option and could be highly cost-effective for women, who preferred to keep their uterus.

CRD commentary
Interventions:
The interventions were clearly reported. The study appears to have thoroughly covered the available interventions, including the current practice. Hysterectomy was the gold standard in the authors' setting, while UAE was a new procedure.

Effectiveness/benefits:
The effectiveness data were mainly derived from a multi-centre cohort study and further literature. No systematic search of the literature was reported. It is not possible to judge the validity of the data given the information reported in this paper. The utilities were obtained from published literature and the methods used to derive them were reported.

Costs:
The costs appeared to reflect the perspective. The resource use data and the unit costs were well reported, and the cost data appeared to be appropriate for the population and setting. Discounting was conducted and the price year was reported, which will allow the revaluation of the results in future years. The uncertainty around the estimates used was also investigated, which makes the results more generalisable.

Analysis and results:
The model structure was presented graphically and the relevant modelling details and assumptions were clearly reported. Extensive one-way sensitivity analyses were conducted to assess the structural modelling assumptions. In addition, a probabilistic analysis and an analysis of covariance were performed to investigate the uncertainty in the modelling parameters. These results were reported in sufficient detail.

Concluding remarks:
Despite some limitations to the clinical data, the analysis was clearly and transparently reported. The conclusions reached by the authors appear to be appropriate.