1. Introduction

- Symptomatic uterine fibroids are the most common tumour in women of reproductive age associated with reduced quality of life.
- Conventionally, invasive surgical treatments (hysterectomy and myomectomy) are offered in the UK. Myomectomy is the only uterus preserving option.
- Alternatively, the National Institute for Health and Clinical Excellence (NICE) UK recommends non-invasive treatment (uterine artery embolization (UAE)) for women who do not wish to have surgery and/or who wish to preserve their fertility.
- However, there is limited, conclusive clinical and economic evidence comparing UAE and myomectomy available.

2. Aim

To determine the cost-effectiveness of UAE and myomectomy, in women wishing to avoid hysterectomy.

3. Methods

**FEMME trial**

A multicentre, open, randomized trial which aimed to examine the quality of life experienced by premenopausal women (n=254) with symptomatic uterine fibroids amenable to UAE or myomectomy wishing to avoid hysterectomy.

**Cost-utility analysis**

- Perspective of the UK National Health Service (NHS) was adopted over the time horizons of two and four years. Unit costs were applied to resource use identified within the trial. Health outcomes, expressed as quality-adjusted life-years (QALYs), were calculated from EQ-5D-3L using the area-under-the-curve method.
- Generalised linear models were used to estimate mean costs and QALYs for each arm of the trial. A non-parametric bootstrap was used to quantify uncertainty around the incremental costs and QALYs.
- Sensitivity analyses: i) Complete case analysis; ii) Impact of varying unit cost of procedures.

4. Results

<table>
<thead>
<tr>
<th>Costs (GBP-£), QALYs and Incremental Cost-effectiveness Ratios (ICERs) with 95% Confidence Interval</th>
<th>UAE</th>
<th>Myomectomy</th>
<th>Mean total cost</th>
<th>95% Confidence Interval</th>
<th>Mean total QALY</th>
<th>95% Confidence Interval</th>
<th>Incremental costs</th>
<th>Incremental QALYs</th>
<th>Incremental ICERs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 2 years</td>
<td>7,958</td>
<td>(6,304 to 9,612)</td>
<td>7,314</td>
<td>(5,854 to 8,773)</td>
<td>0.74</td>
<td>(0.70 to 0.78)</td>
<td>0.83</td>
<td>(0.79 to 0.87)</td>
<td>-1,381 to 2,580</td>
</tr>
<tr>
<td>Over 4 years</td>
<td>8,362</td>
<td>(6,640 to 10,083)</td>
<td>8,010</td>
<td>(6,422 to 9,598)</td>
<td>0.73</td>
<td>(0.69 to 0.76)</td>
<td>0.82</td>
<td>(0.79 to 0.87)</td>
<td>-1,825 to 2,528</td>
</tr>
</tbody>
</table>

- QALYs were driven by greater improvement in the pain/discomfort and anxiety/depression domains of EQ-5D-3L in myomectomy arm compared with the UAE arm.
- Treatment costs were lower for UAE arm. However, higher costs continued to accumulate post-treatment.
- Costs were driven by GP visits, outpatient appointments and inpatient admissions during the follow ups.
- UAE was associated with higher costs and lower QALYs compared with myomectomy over both years.
- Myomectomy had a higher probability (98% at two years, 96% at four years) of being cost-effective than UAE at willingness to pay thresholds of £20,000 and higher.
- The results remained robust to both the sensitivity analyses.

5. Conclusion

- UAE would not be considered a cost-effective alternative to displace myomectomy, albeit small differences in costs and QALYs.
- The cost-utility approach does not consider any potential preference for less invasive procedure for the treatment of symptomatic uterine fibroids.
- Fully informed patient preference should be considered, and women should have the option to choose between UAE and myomectomy.
- Future research should explore methods to quantify patient preferences and incorporate it into subsequent economic analyses of medical, surgical and non-surgical interventions for symptomatic uterine fibroids.


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