Cost-effectiveness Analysis for Treatment of Symptomatic Uterine Fibroids Among Premenopausal Women Seeking to Retain Their Uterus

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BACKGROUND

Uterine fibroids (leiomyoma) are a common condition in women, with an annual incidence rate of 5.0 per 1,000 women aged 20 to 68 years when confirmed by ultrasound or magnetic resonance imaging (MRI).†

Primary symptoms include excessive bleeding, dysmenorrhea (pain during menstruation), and pelvic pressure or discomfort.‡ Sensitivity and symptoms increase with fibroid size, and symptoms such as fatigue or anemia can occur.‡

• Uterine fibroids are associated with circulating levels of estrogen and progesterone, and growth and incidence are generally reduced after menopause when the levels of these hormones decline.‡

• Treatment for uterine fibroids include:
  - Observation
  - Therapies for uterine fibroids include:
    - Watchful waiting (includes a 0.02 utility decrement for a woman’s presumed unwanted loss of her uterus)
    - Medical therapies (e.g., GnRH agonists, oral contraceptives, or levonorgestrel-releasing intrauterine devices)
    - hysterectomy including a 0.02 utility decrement for a woman’s presumed unwanted loss of her uterus

OBJECTIVE

To determine the cost-effectiveness of different treatment options and optimal number of treatments for symptomatic uterine fibroids in women who wish to retain their uterus.

METHODS

A database- and literature-based Markov model was developed to encompass different treatment options, as well as to determine the optimal number of treatment options, for premenopausal women who desire the ability to retain their uterus. A database of all available treatments was processed to retain their uterus (Figure 1).

Figure 1. Overview of the Model

Model Structure

Model Inputs and Sensitivity Analysis

The time horizon was defined as age diagnosis to age of menopause or age 60 years, with a cycle time of 1 year for transitions between health states.

The model includes both uterine fibroid-related monitoring costs (variable costs that are directly related to the presence of symptomatic fibroids) and medical therapy costs.‡

In each cell, menopause or age 60 years, with a cycle time of 1 year for transitions between health states.

Costs (2007 US$) and utilities were discounted at 3% annually.‡

Model Outcomes

Asymptomatic

Table 1 shows Model Outcomes and Sensitivity Analysis.

Table 1. Sensitivity Analysis

Table 2 shows Model Outcomes and Sensitivity Analysis.

RESULTS

• Base case results show that treatment of symptomatic fibroids with GnRH followed by hysterectomy was the most costly and more effective than watchful waiting (Table 3).

Myomectomy followed by hysterectomy was the most cost-effective strategy, in terms of the incremental cost-effectiveness ratio (ICER), compared with watchful waiting (Table 4).

The annualized percentage of asymptomatic women who underwent surgery was based on US population-based age-specific rates.‡

• Sensitivity analysis is important as willingness-to-pay threshold of $100,000 per QALY gained.

CONCLUSIONS

• Treatment strategies including a lifetime use of GnRH led to better health outcomes and lower costs (i.e., dominated) compared with strategies containing myomectomy only, because of the lower cost and less myomectomy-related complications.

• For women of all ages, initial treatment with current use of GnRH leads to a significant benefit for health compared with the use of myomectomy-related complications, with less mortality risks.

• Treatment options are limited for a woman seeking to retain her uterus. Women with endometrial cancer or women with advanced fibroids are considered for the treatment of symptomatic fibroids in women desiring to retain their uterus. Myomectomy, with or without myomectomy-related complications, and hysterectomy with or without myomectomy-related complications are considered.

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REFERENCES


