

Original Article

Laparoscopic Hysterectomy: Eliciting Preference of Performers and Colleagues Via Conjoint Analysis

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ABSTRACT **Study Objectives:** To compare preferences for laparoscopic hysterectomy (LH) over abdominal hysterectomy (AH) by gynecologists who perform LH (group 1), their colleagues (group 2), and gynecologists employed by a hospital that does not provide LH (group 3), and to estimate boundary values of patient characteristics that influence preference for mode of hysterectomy. Differences in referral tendencies between groups 2 and 3 are compared.

Design: Group comparison study (Canadian Task Force classification II-2).

Setting: Nationwide conjoint preference study in groups 1, 2, and 3.

Intervention: Web-based choice-based conjoint analysis questionnaire.

Measurements and Main Results: In general, group 1 preferred LH significantly more often (86.3%; 95% confidence interval [CI], 81.6–91.0) than did group 2 (70.9%; 95% CI, 63.4–78.4). Group 3 preferred LH significantly less frequently (50.3%; 95% CI, 35.7–64.9). Increases in body mass index, estimated uterus size, and number of previous abdominal surgeries caused a significant drop in shares of preferences in all groups.

Conclusions: The presence of a gynecologist who performs LH positively influences the referral behavior of colleagues. The effect of an increased body mass index seems to be a restrictive parameter for choosing LH according to both referring gynecologists and those who perform LH. Level of experience does not influence preference of laparoscopists. The observed discrepancy between reported and simulated referral behavior in group 3 demonstrates that practical impediments significantly decrease referral tendencies, consequently hampering implementation of this minimally invasive approach. Journal of Minimally Invasive Gynecology (2011) 18, 582–588 © 2011 AAGL. All rights reserved.

Keywords: Conjoint analysis; Hysterectomy; Laparoscopy; Preference; Referral tendencies

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Despite the introduction of alternative nonsurgical therapies, hysterectomy for benign indication remains the number one major surgery in gynecology, preferably, but not actually, via the vaginal approach [1,2]. If vaginal hysterectomy (VH) is not achievable, laparoscopic hysterectomy (LH) has several advantages over conventional abdominal hysterectomy (AH)

The authors have no commercial, proprietary, or financial interest in the products or companies described in this article.

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Submitted January 6, 2011. Accepted for publication May 16, 2011.
Available at www.sciencedirect.com and www.jmig.org

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doi:10.1016/j.jmig.2011.05.009

[3–5] Potential disadvantages of LH such as higher rates of urinary tract lesions and a supposedly longer learning curve have been studied thoroughly [6–10]. These studies have demonstrated that the aforementioned disadvantages of LH are absent in skilled hands. Other studies disprove possible limitations of LH with regard to body mass index (BMI) and uterine size [11–14]. Notwithstanding this evidence, AH still prevails as the approach of choice, in some countries [15–17]. These findings are in striking contrast with the distinct preference of optimally counseled patients, who strongly prefer LH over AH [18].

Dutch gynecologists mention insufficient laparoscopic skills training during residency as a major obstacle to mastering advanced laparoscopic procedures such as LH [19].

In the Netherlands, standardized teaching in LH during residency is not provided. Gynecologists willing to master LH must learn the techniques during a fellowship or a mentored traineeship [7]. Candidate patients for LH must be referred by colleagues from the same hospital or by gynecologists employed in a hospital that does not provide the option of LH. It is conceivable that despite knowledge of the advantages of LH over AH, there exists a discrepancy between this knowledge and daily practice in preference for LH and referral of candidate patients.

Only a few studies have been performed that elicited clinician preference for mode of hysterectomy. A recent US survey revealed that most gynecologists would prefer VH or LH for themselves or their spouse [20]. Yet US gynecologists, as well as Danish gynecologists, seem to opt for AH in most hysterectomy candidates, and Australian colleagues, willing to increase the percentage of LH procedures, report lack of hospital equipment and lack of support from colleagues as major limiting factors [16,21–23]. Other studies have discussed teaching hospital status as affecting gynecologist preference [24,25]. However, all of these studies failed to explore preference boundaries, and did not properly assess various patient factors. In addition, referral tendencies for LH have not been investigated. Exploration of preference boundaries and patient factors, combined with referral tendencies, will likely provide answers to the origin of the observed hampered implementation of LH.

With the introduction of choice-based conjoint analysis techniques, it is possible to obtain an accurate view of preference boundaries over multiple patient factors while applying a concise set of cases. The main characteristic differentiating choice-based conjoint analysis from other types of conjoint analysis is that the respondent expresses preferences by choosing concepts (ie, mode of hysterectomy) from sets of concepts rather than by rating or ranking them. Choice-based conjoint analysis is a well-established web-based analytic tool used for learning about respondent preferences for the combinations of features that compose products or therapies. Market simulators that result from choice-based conjoint analysis enable researchers to test numerous product formulations and competitive scenarios. Use of this innovative and sophisticated technique enables assessment of the preference for LH by gynecologists who perform the procedure vs those who do not. A secondary objective of the present study was to estimate boundary values of patient characteristics that influence preference for mode of hysterectomy. Differences in referral tendencies are compared and discussed.

Materials and Methods

To define a realistic set of patient characteristics, a panel of 6 gynecologists consisting of 3 experienced laparoscopists and 3 gynecologists who do not perform advanced laparoscopy was provided with a list of the top 10 discriminating factors for choice of mode of hysterectomy, based on

a search of the literature. This list included estimated uterus size, uterine prolapse, number of vaginal deliveries, number of previous laparoscopic abdominal surgeries, obesity, procedure cost, risk of urinary tract injury, duration of surgery, recovery time, and cosmetic aesthetics. Consensus was reached on 3 factors: estimated uterine size, previous abdominal surgery (either via laparotomy or laparoscopy), and BMI. These 3 characteristics were presumed to have a major effect on the choice of mode of hysterectomy. Each parameter, hereafter called “attribute,” was assigned a distinct set of levels (Table 1). With respect to risk of adhesion formation, laparotomy, and major laparoscopy were considered trigger events [26].

To provide a limited number of hypothetical cases while gaining sufficient information to precisely assess each respondent's preference, choice-based conjoint analysis (Sawtooth Software, Sequim, WA) was used. In the present study, 18 hypothetical pairwise choices, each consisting of variants of all 3 attributes, were needed to assess preference. Each pairwise choice represented a hysterectomy candidate for AH on the left side of the screen and a different hysterectomy candidate for LH on the right side (Fig. 1). Because VH is the criterion standard, each respondent was told that in the hypothetical cases, VH was contraindicated because of insufficient descensus or accompanying adnexal disease, and consequently was excluded as a surgical treatment option in each pairwise choice. Responding gynecologists who did not perform LH were asked to opt for the LH alternative in the choice task if they preferred referring this case to an LH-performing colleague rather than performing AH on the other patient. Consequently, referral tendencies could be measured.

Next to the 18 pairwise choices, a concise number of demographic questions was introduced including sex, number of years as a specialist, performing LH or not, working in a hospital where LH is performed or not, experience with laparoscopy in general, and, if applicable, total number of LH procedures performed as the primary surgeon. To evaluate possible learning curve bias, gynecologists who perform LH were subdivided for overall number of LH procedures performed. Although hard evidence on completion of the LH learning curve is still lacking, it was decided to use a cut-point of 30 LH procedures, as reported in the literature [7,8,27,28]. Therefore, gynecologists were classified into subgroups of those who were progressing along the learning curve (<30 LH procedures performed), those who had accomplished the learning curve (>30 LH procedures), and those who had mastered the learning curve twice (>60 LH procedures).

Insofar as preferred LH techniques, 3 subtypes were identified: laparoscopic-assisted vaginal hysterectomy (LAVH), supracervical laparoscopic hysterectomy (SLH), and total laparoscopic hysterectomy (TLH) [29]. In addition, for gynecologists not performing LH, 1 multiple-choice question assessed preference insofar as possible referral for LH to determine self perception of referral behavior.

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