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Original Article

The Impact of Alternative Treatment for Abnormal Uterine Bleeding on Hysterectomy Rates in a Tertiary Referral Center

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ABSTRACT **Study Objective:** The purpose of this study was to estimate the influence of alternatives to hysterectomy for abnormal uterine bleeding (AUB) on hysterectomy rates.

Design: Retrospective cohort study. Canadian Task Force II-2.

Setting: University hospital.

Patients: Premenopausal patients with AUB.

Interventions: Medical records of all premenopausal patients treated for AUB in our university clinic between January 1, 1995, and December 31, 2004, were reviewed. Patients were identified based on (specific) diagnostic and therapy codes used in the registry system of the hospital. The total number of placements of levonorgestrel-releasing intrauterine device (LNG-IUD), hysteroscopic surgery, and hysterectomies performed/year was estimated. In addition, the course of treatment of each patient was assessed.

Measurements and Main Results: A total of 640 patients received surgery and 246 LNG-IUDs were placed. The proportion of endometrial ablations decreased significantly over time ($p < .001$), whereas hysteroscopic polyp or myoma removal ($p = .030$) and insertion of LNG-IUD ($p < .001$) both increased. The proportion of patients receiving hysterectomy for AUB as their first therapy decreased significantly ($p = .005$) from 40.6% to 31.4%, although the total number of patients receiving hysterectomy remained similar ($p = .449$). The 5-year intervention-free percentage for LNG-IUD was 70.6% (SD = 3.3%), for hysteroscopic polyp or myoma removal 75.5% (SD = 3.3%), and for endometrial ablation 78.0% (SD = 4.3%; $p = .067$).

Conclusion: Despite the introduction of alternative therapies, the total hysterectomy rate in the management of AUB did not decrease in our clinic. Journal of Minimally Invasive Gynecology (2009) 16, 47–51 © 2008 AAGL. All rights reserved.

Keywords: Hysterectomy; Hysteroscopic surgery; Levonorgestrel-releasing intrauterine device; Abnormal uterine bleeding; Premenopausal

Hysterectomy remains one of the most common major surgical gynecologic procedures. However, marked differences exist in the number of hysterectomies between countries, from a high of 5.4/1000 women in the United States [1], through intermediate levels such as Italy (3.7/1000) [2], to a low of 1.2/1000 in Norway [3]. The number of hysterectomies in The Netherlands in 1998 was estimated at 2.7/1000 women [4].

Abnormal uterine bleeding (AUB) caused by intrauterine abnormalities such as uterine myomas is the most common indication for hysterectomy, accounting for 40% of all hysterectomies [5–7]. In the United Kingdom, excessive menstrual bleeding in the absence of structural abnormalities (dysfunctional uterine bleeding [DUB]) is the second most common indication accounting for at least one third of the cases.

With such a high prevalence, it is essential that the effects of hysterectomy for benign indications are reviewed periodically. This is particularly important because a number of potentially effective alternatives (e.g., levonorgestrel-releasing intrauterine device [LNG-IUD] and hysteroscopic surgery), reducing or eliminating length of hospital stay and morbidity, were developed. However, the belief that the introduction of alternative therapies would substantially reduce the need for hysterectomy could not be materialized yet. Therefore, we retrospectively assessed the influence of alternatives to hysterectomy for AUB on hysterectomy rates in our university hospital during a 10-year period (1995–2004).

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Material and Methods

Medical records of all premenopausal patients receiving surgery or LNG-IUD because of abnormal uterine bleeding between January 1, 1995, and December 31, 2004, were reviewed. Abnormal uterine bleeding was defined as menorrhagia, metrorrhagia, or intermenstrual bleeding. Patients were excluded in case of infertility, postmenopausal state, or (suggestion of) malignancy of the genital tract.

Eligible patients were identified based on (specific) diagnostic codes (e.g., for menorrhagia, metrorrhagia, intermenstrual bleeding, uterus myomatosis, or polyps) used in the registry system of the university hospital. Therapy codes (e.g., for hysteroscopic polypectomy, hysteroscopic myomectomy, endometrial ablation, and hysterectomy) were used for double check to ascertain that all eligible women were included. Information on demographic data, date of first appointment, symptoms, diagnosis, pathology, and therapy were retrieved from the medical record by individual chart review. Diagnosis was established by histologic analysis if possible and classified as AUB based on structural abnormalities (uterus myomatosis, endometrial polyp, adenomyosis/endometriosis) or in absence of intrauterine abnormalities as DUB. Histologic specimens were obtained at hysterectomy, myomectomy, polypectomy, or endometrial ablation. Diagnosis of patients receiving only LNG-IUD was based on ultrasound and/or diagnostic hysteroscopy results.

For each procedure the total number of patients receiving it as first treatment was estimated, and presented by percentage of the total number of patients receiving surgical treatment or LNG-IUD for AUB in the corresponding year. Further, failure of treatment of each patient receiving LNG-IUD or hysteroscopic surgery for AUB was determined. Failure was defined as the need of subsequent therapy.

The collected information was analyzed with statistical software (SPSS, Version 14, SPSS Inc, Chicago, IL). Normally distributed continuous variables were presented by means, their SDs, and 95% confidence interval. To test whether several means were equal, 1-way analysis of variance (ANOVA) test was used. Categorical data were presented as frequency and percentage, and analyzed by Chi-square test. Not-normally distributed continuous variables were presented as median and range. To test whether medians were equal, Kruskal-Wallis test was used. Cochrane-Armitage test for trend [8] was performed to determine differences of therapy rates over time. To calculate the intervention-free time of patients requiring subsequent treatment after minimally invasive surgery or insertion of LNG-IUD, Kaplan-Meier curves and the log rank test were used. Significance was reached at p value less than .05.

Results

In the investigated period, 2157 premenopausal patients with AUB attended our clinic. Of this group, 1271 (58.9%) patients received oral medical therapy or no treatment at all; the other 886 (41.1%) patients had either surgical therapy or received LNG-IUD. Within this time frame, staffing remained similar (staffing performing hysterectomy [n = 6] and endoscopic surgery [n = 3]).

Patient characteristics are detailed in Table 1. The mean age at which LNG-IUD (41.6 years) was placed and hysteroscopic surgery (43.1 years) or hysterectomy (44.9 years) were performed differed significantly (1-way ANOVA test; p <.001). The mean age at which hysterectomy was performed remained similar during the studied period (1-way ANOVA test; p =.940).

In total, 640 patients received surgery between 1995 and 2004, whereas 246 LNG-IUDs were placed. Hysterectomy was performed as first treatment in 303 (34.2%) patients. In

Table 1
Demographic characteristics of patients with abnormal uterine bleeding receiving surgery or levonorgestrel-releasing-intrauterine device between January 1, 1995, and December 31, 2004

Patient characteristics	LNG-IUD	Hysteroscopic surgery	Hysterectomy	p
Total No. of patients	246	337	303	
Mean age at therapy, yrs (SD; 95% CI)	41.6 (6.5; 28.8–54.4)	43.1 (6.4; 30.6–55.6)	44.9 (4.9; 35.4–54.4)	<.001[a]
Median delay between first visit and therapy, months (range)	4.3 (0–99)	5.9 (0–119)	5.6 (0–114)	.607[b]
Symptoms of AUB; No. of patients (%)				
Menorrhagia	181 (73.6)	112 (67.3)	219 (72.3)	
Metrorrhagia	51 (20.7)	98 (28.7)	83 (27.4)	
Intermenstrual bleeding	14 (5.7)	14 (4.0)	1 (0.3)	
Diagnosis; No. of patients (%)				<.001[c]
Dysfunctional uterine bleeding	177 (71.9)	59 (17.5)	32 (10.6)	
Structural abnormality	69 (28.1)	278 (82.5)	271 (89.4)	

AUB = abnormal uterine bleeding; LNG-IUD = levonorgestrel-releasing intrauterine device.
[a] One-way analysis of variance test.
[b] Kruskal-Wallis test.
[c] Pearson Chi-square test.