ORIGINAL ARTICLE

Use of a levonorgestrel-releasing intrauterine device in the treatment of adenomyosis associated heavy menstrual bleeding

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Abstract

Objective: To evaluate the effects of a levonorgestrel-releasing intrauterine device in the treatment of adenomyosis associated with heavy menstrual bleeding.

Methods: The retrospective study was conducted at a tertiary referral hospital in Izmir, Turkey, and comprised data on adenomyosis patients who were implanted with a levonorgestrel-releasing intrauterine device for heavy menstrual bleeding between December 2004 and January 2008. After the insertion of the device, all patients were followed up by transvaginal ultrasonography and serum haemoglobin levels and menstrual patterns were determined at the 6th and 12th month. Data was analysed using SPSS 10.

Results: The mean age of the 42 women in the study was 43.2±0.8 years. At the sixth month, amenorrhoea, oligomenorrhoea, spotting and regular menstrual flow were 9.5% (n=4), 7% (n=3), 19% (n=8), and 64% (n=27), respectively. At the 12th month, the same parametres were 9.5% (n=4), 7% (n=3), 12% (n=5), and 71% (n=30), respectively. Haemoglobin levels had increased and endometrial thickness had decreased, and these differences were statistically significant ($p<0.001$).

Conclusion: The easy-to-use levonorgestrel-releasing intrauterine device can be added to the treatment options as a well-tolerated alternative in cases where a woman who has completed her fertility and does not request a hysterectomy has anaemia associated with adenomyosis.

Keywords: Heavy menstrual bleeding, Levonorgestral-releasing intrauterine device, Adenomyosis. (JPMA 63: 1349; 2013)

Introduction

Adenomyosis of the uterus is a common condition among women in their 4th and 5th decades of life and is thought to affect 1% of women. The etiology is unclear and the most frequent presenting symptoms are painful as well as heavy menstrual bleeding (HMB) periods, although many women are asymptomatic.[1] The clinical presentation of adenomyosis is usually a multiparous, perimenopausal patient complaining of dysmenorrhoea and menorrhagia, though the diagnosis is difficult to obtain without histological confirmation.[2] However, recent advances in diagnostic methods and new investigations of treatment methods have changed the management of adenomyosis.[3] It can be diagnosed by transvaginal ultrasonography (TVUSG) with the use of some specific criteria, like globular-appearing uterus, heterogeneous myometrial echo texture, sub-endometrial myometrial cysts, asymmetric thickness of the anteroposterior wall of the myometrium, sub-endometrial echogenic linear striations or poor definition of the endometrial-myometrial junction.[4]

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HMB is the most common cause of iron-deficiency anaemia at a premenopausal age.[5] It is estimated to occur in 30% of women in their reproductive years. The definition and diagnosis of HMB is made when the duration of bleeding is equal to or greater than six days or blood-loss is at least 80ml. However, many women seek consultation for even milder bleeding episodes due to the associated stress, discomfort, and quality of life impairment, thus making HMB one of the most frequent reasons for gynaecological consultation.[6,7]

Hysterectomy is generally used to treat women with this condition[8] but there are less invasive options than hysterectomy for the treatment of heavy menstrual bleeding, such as endometrial resection and the levonorgestrel-releasing intrauterine system (LNG IUD), which has become popular.[9]

LNG IUD is a contraceptive device that has dramatic effects in lowering the bleeding intensity in menorrhagia. It is further characterised by reversibility and may be the firstline treatment in women with HMB. Due to its low systemic steroidal dose, the adverse events are mild and few.[10]

Using LNG IUD is an effective and well-accepted option overall for the medical management of HMB. However, looking at the current literature, there are very limited

studies concerning a combination of both adenomyosis and HMB.

The current study was planned to investigate the effectiveness of LNG IUD in the treatment of adenomyosis associated HMB.

Patietns and Methods

The retrospective study was conducted at the Gynaecology Department of the MH Aegean Maternity and Teaching Hospital, Izmir, Turkey, and comprised record of patients from December 2004 to January 2008. The study was approved by the institutional ethical board. During the period, 6240 patients were admitted with complaints of menorrhagia, and 455 were given LNG IUD contraception for such indications.

Among the patients over 40 years of age, 42 patients diagnosed with adenomyosis-associated HMB were followed up retrospectively for 12 months. The patients were asked to fill in the Pictorial Blood Assessment Chart.[11] The patients comprising the study group were those who had used oral contraceptives (OC), non-steroidal anti-inflammatory drugs (NSAID) and several progesterone treatments for at least three months within the year before the LNG IUD treatment and who had not requested a hysterectomy. Study sample size was calculated by One-Sample Inference — One-Sample Inference for a Binomial Proportion in Bernard Rosner's Fundamentals of Biostatistics.[12]

Prior to the LNG IUD insertion, all patients were examined by endometrial biopsy (for endometrial carcinoma and/or endometrial atypical hyperplasia) and cervical pathology (for cervical cancer or pre-invasive intraepithelial lesions) and, if positive, were confirmed by Dilatation and Curettage (D & C) or endometrial sampling using Pipelle and cervical smear, respectively. These cases were excluded.

TVUSG was used to exclude possible causes of HMB, including myomas and endometrial polyps, as well as adnexal pathology. Women with uterine or adnexal pathology as well as women desiring preservation of fertility were excluded from the study. Women participating in the study reported the duration of uterine bleeding in days prior to, and six and 12 months after each intervention.

All patients' haemoglobin values were included in the study before the insertion. Adenomyosis was diagnosed with the observation of one or more heterogeneous, non-encapsulated myometrial sections in various scale round, anechoic sections through the TVUSG (Aloka SSD 1700, 5.0 MHz transvaginal prop) performed by a radiologist.

The IUD releasing 20mcg levonorgestrel (Mirena®, Schering AG, Berlin, Germany) was applied daily during the first five days of their menstruation periods. The patients were asked to fill in the "menstrual diary cards" every month. Patients were also assessed clinically and via TVUSG in the 6th and 12th months. The levels of blood haemoglobin were also examined in the controls. Pre-treatment values of endometrial thickness and haemoglobin were compared to followup period. Statistical analyses were performed using SPSS 10.0 and paired t test. P value <0.05 was considered statistically significant.

Results

The mean age of the 42 patients was 43.2±0.8 years (range: 42-48). Their mean parity was 3.01±1.4 (range: 0-5). Spotting was the most frequent menstrual pattern within the first three months. Spotting was slight, irregular and did not cause a decrease in haemoglobin levels. In the 6th month, amenorrhoea was determined in 4 (9.5%) patients, oligomenorrhoea in 3 (7%), spotting in 8 (19%) and regular menstrual haemorrhage in 27 (64%). While the average haemoglobin value was 10.2±0.5g/dl before treatment, the corresponding value was 11.9±0.6 in the 6th month. While the average endometrial thickness was 7.8±0.3 mm before treatment, it was 3.9±0.2 in the 6th month. In the 12th month, the amenorrhoea and oligomenorrhoea patterns remained unchanged. Regular menstrual haemorrhage was observed in 30 (71%) patients, and a menstrual haemorrhage pattern in the form of spotting was observed in only 5 (12%). Menorrhagia was observed in none of the patients either at 6th month or 12th month. In the 12th month, the average haemoglobin value was found to be 12.0±0.8g/dl and the endometrial thickness 3.2±0.2mm (Table-1).

The increase in the haemoglobin value and the decrease in the thickness of the endometrium were statistically significant when the pre-treatment period was compared to 6th and 12th months (p<0.001) (Table-2). Within the 12

Table-1: Effect of Intrauterine Device Releasing Levonorgestrel on Menstrual Pattern, Haemoglobin Value and Ultrasonographic Findings.

		Pretreatment	6. Month	12. Month
Menstrual Pattern	Amenorrhoea	0	4 (%9.5)	4 (%9.5)
	Oligomenorrhoea	0	3 (%7)	3 (%7)
	Spotting	0	8 (%19)	5 (%12)
	Regular	0	27 (%64)	30 (%71)
	Menorrhagia	42 (%100)	0	0

*Variables were seen %.

Table-2: Statistical comparisons of pre-treatment period- and post-treatment period.

	Pre-treatment Values±SD	Follow up time	Post-treatment Values±SD	P - value
Endometrial Thickness (mm)**	7.8±0.3	6th Month	3.9±0.2	<0.001*
		12th Month	3.2±0.2	<0.001*
Haemoglobin (g/dl)**	10.2±0.5	6th Month	11.9±0.6	<0.001*
		12th Month	12.0±0.8	<0.001*

*p<0.05 was significant.

**Endometrial thickness and haemoglobin values were given as a Mean±SD.

month period, there was a breast swelling feeling in 5 (12%) patients, seborrhea and acne in 7 (16%), and weight-gain over 1.5 kg in 9 (21%) after the application of the IUD. The study sample size power was 86%.

Discussion

According to the results of our study, for a woman who has anaemia associated with adenomyosis, who has completed her fertility and who does not request a hysterectomy, an easy-to-use LNG IUD can be added to the treatment options as a well-tolerated alternative.

When the whole literature related to LNG IUD is viewed, articles on their use in many benign uterine conditions besides contraception are found. This provides us information indicating a greater benefit to patients that is easier and requires fewer operations.[5-10] However, there are limited studies in recent literature related to adenomyosis and LNG IUD in comparison to other HMB causes. In one study, Jie Sheng et al. reported their long-term (3 year) research, showing that the uterine volume and pain scores of patients were significantly decreased.[13] In different studies in which haemorrhage patterns were analysed, it was reported that the most frequent haemorrhage form was spotting and oligomenorrhoea in the six-month period.[14] In our study, the most frequent menstrual pattern was also spotting. In the six-month period, amenorrhoea in 4 (9.5%) patients, oligomenorrhoea in 3 (7%), spotting in 8 (19%) and regular menstrual bleeding in 27 (64%) patients were determined. Seborrhea, acne, weight-gain, headache and ovarian cyst stood out in the systemic side effect profile of LNG IUD. Jie Sheng et al. reported weight-gain (28.7%), simple ovarian cyst formation (22.3%) and lower abdominal pain (12.8%).[13] In the study performed by Fedele L et al., IUD-related side effects were mainly headache (24%), breast tenderness (16%), seborrhea and acne (24%), and weight-gain (28%).[15] In our study, breast tenderness in 5 (12%) patients, seborrhea and acne in 7 (16%), and weight-gain over 1.5 kg in 9 (21%) patients were detected at the end of the 12-month period.

LNG IUD was used in HMB associated with many factors in literature and certain associations were statistically significant. Increases in haemoglobin levels were detected.[5-7,16] But there are limited numbers of publications in which anaemia associated with adenomyosis is evaluated. One of these was performed in 1997 and the researchers found a significant increase in haemoglobin levels at the end of 12 months in a series in which 23 patients completed the study.[15] In our study composing 42 patients, the average haemoglobin level was 10.2±0.5g/dl before treatment and 12.0±0.8g/dl at the end of 12 months. This difference was statistically significant (p<0.001). We also measured pre- and post-treatment sonographic endometrial thickness which was significantly reduced at the end of the study period.

In a study performed recently, it was investigated whether the use of LNG IUD in patients with adenomyosis can be an alternative to hysterectomy and it was mentioned that the relative life quality of the patient with an LNG IUD is better than the group that underwent hysterectomy. The same researchers stated that haemoglobin values were similar for the two groups at the end of one year.[17] The patients in our study had used OC, NSAID and several progesterone treatments for at least three months within the last year before the LNG IUD treatment and did not request hysterectomy. Our study could be considered deficient in some aspects. It was retrospective in nature, and we did not use a pain score and did not evaluate the life quality scores of the patients after treatment.

However, reporting significant haemoglobin and endometrial thickness values together with the sideeffect spectrum, though retrospective, is important for the current literature on adenomyosis-LNG IUD.

Conclusion

LNG IUD can be added to the treatment options as a well-tolerated alternative when a woman who has completed her fertility and does not request a hysterectomy has anaemia associated with adenomyosis. Nevertheless, the

systemic side-effect spectrum is important. Women should be informed about seborrhea, acne and, especially weight-gain before treatment.

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