

## THERAPEUTIC EFFICACY OF LEVONORGESTREL INTRAUTERINE SYSTEM AS AN ALTERNATIVE TO HYSTERECTOMY FOR MANAGEMENT OF HEAVY MENSTRUAL BLEEDING IN PERIMENOPAUSAL WOMEN

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### ABSTRACT

**Objective:** This prospective observational study has been conducted to find out the efficacy and patient satisfaction of levonorgestrel intrauterine system (LNG-IUS), and it was compared with results of hysterectomy in perimenopausal Indian women with heavy menstrual bleeding (HMB).

**Methods:** It was a prospective study conducted on 135 cases after taking consent. Patients were inserted with LNG-IUS, and the outcome in terms of further bleeding and quality of life was compared to that of hysterectomy.

**Results and Conclusion:** Levonogestrol containing-IUS is a highly effective treatment of HMB in perimenopausal women. It is a safe, effective, and quality of life after treatment makes it a good alternative to hysterectomy for HMB.

**Keywords:** Production of chloroform by fresh water chlorella species and blue green alga Anabaena flos-aquae has also been reported by Wachter and Andelman, 1984.

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### INTRODUCTION

Heavy menstrual bleeding (HMB) is menstrual blood loss (MBL) that is subjectively considered to be excessive by the woman, defined as prolonged (>7 days) or excessive MBL  $\geq 80$  ml per menstrual cycle [1] and interferes with her physical, emotional, social, and material quality of life. HMB is an important cause for anemia in perimenopausal women. In general, HMB is a symptom of ovulatory disorders, primary endometrial disorders, fibroid, adenomyosis, and endometriosis, or genital malignancies [2]. Medical treatment for benign lesions includes non-hormonal or hormonal oral medications for a prolonged period of time. When medical treatment is ineffective or unacceptable to the patient, surgical treatment such as hysterectomy or endometrial ablation is the choice. The levonorgestrel-releasing intrauterine system is a nonsurgical, long-acting, and alternative to the traditional medical and surgical treatments for HMB [3].

NICE guideline has stated that while Mirena levonorgestrel intrauterine system (LNG-IUS) is preferable to other medical treatments (tranexamic acid, nonsteroidal anti-inflammatory drugs [NSAIDs], and COC); this recommendation is based on indirect evidence [4].

The effectiveness and cost-effectiveness of levonorgestrel-containing intrauterine system in Primary Care against Standard Treatment for Menorrhagia (ECLIPSE [5]) trial was a pragmatic, multicenter, and randomized trial that compared the clinical effectiveness of the levonorgestrel IUS with that of usual medical treatment in the primary care setting. Indirect comparison has shown that LNG-IUS generates more quality-adjusted life years than other medical treatments (tranexamic acid, NSAIDs, and COCP) and at a lower cost. Therefore, LNG-IUS is the recommended first-line treatment for HMB.

### METHODS

A prospective observational study was conducted to study the efficacy of LNG-IUS in comparison to hysterectomy in perimenopausal women with HMB.

In this study, 135 cases volunteered for taking LNG-IUS. LNG-IUS was inserted as per guidelines, after excluding cases of

fibroid >5 cm, adnexal mass, submucosal fibroid or polyp and uterine anomaly by hysteroscopy, clinical and suspicious cases of malignancy, any active liver disease, and coagulopathy.

These patients were followed up at 1 month, 3 months, 6 months, and 12-month post-insertion.

Factors observed at follow-up:

1. Number of pads used per day
2. Duration of bleeding
3. Hemoglobin (Hb%) level
4. Objective sense of wellbeing.

### RESULTS

Table 1 summarizes majority of cases attending OPD were from age group 15–39 years (62%) and 38% of cases belong to age group 40–45 years. Out of 2165 cases of HMB, 866 cases were found to have no obvious structural pathology, i.e., around 40% cases.

Out of 537 cases of HMB in perimenopausal group, only 135 (25.14%) cases gave consent for LNG-IUS insertion, and it was inserted as per guidelines for insertion of LNG-IUS [6].

All cases were using more than 5 pads per day before insertion of LNG-IUS.

None of the cases were using more than 8 pads per day 1 month after insertion of LNG-IUS while only 28 patients were using 5–8 pads per day, i.e., 78.6% attained desired MBL after 1 month post-insertion.

Graph 4 shows 89.3% attained desired MBL after 3 months of LNG-IUS insertion.

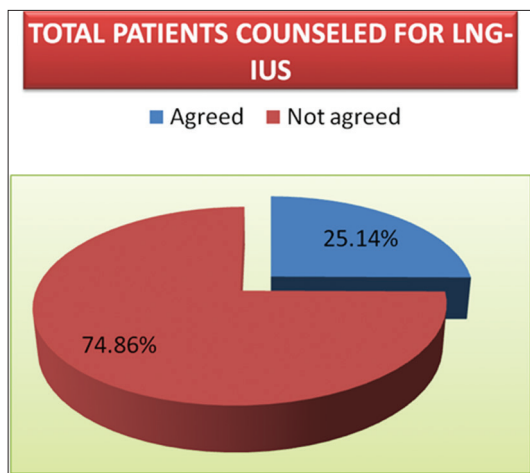
While none of the cases were using more than 6 pads per day 6-month post-insertion of LNG-IUS insertion, 90% achieved desired MBL.

92% of the cases achieved desired MBL at 1 year post-insertion of LNG-IUS.

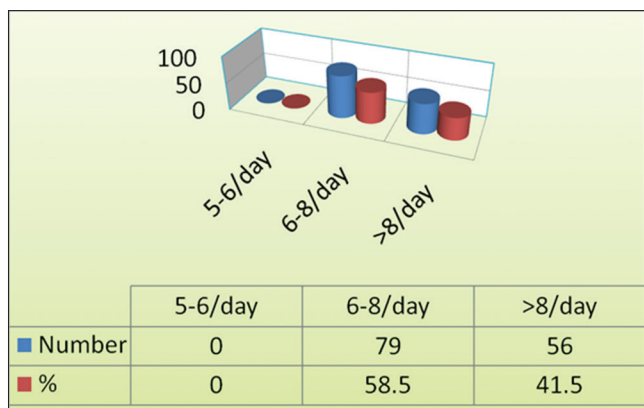
Table 1: Demographic characters of total patients (14432)

Age in years	n (%)				
	HMB (n=2165)	Without obvious pathology (n=866)	Fibroid (n=541)	Others (n=758)	Total (n=14432)
15-39	876 (40)	329 (38)	447 (80.2)	224 (30)	9048 (62)
40-45	1289 (60)	537 (62)	94 (19.8)	534 (70)	5348 (38)

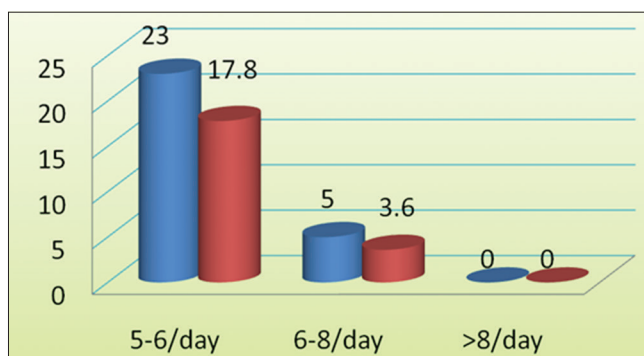
HMB: Heavy menstrual bleeding



Graph 1: Total patients counseled for insertion of levonorgestrel intrauterine system

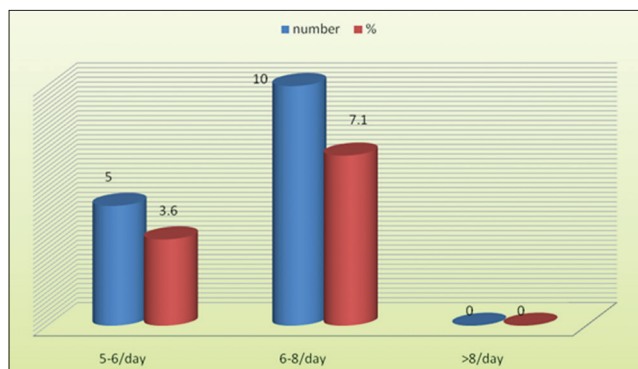


Graph 2: Menstrual blood loss 1 month before insertion of levonorgestrel intrauterine system/hysterectomy

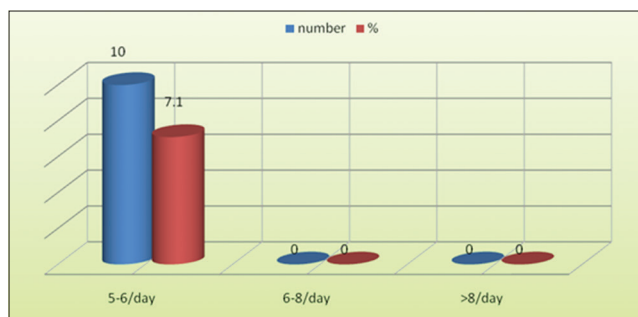


Graph 3: Menstrual blood loss after 1 month of levonorgestrel intrauterine system insertion

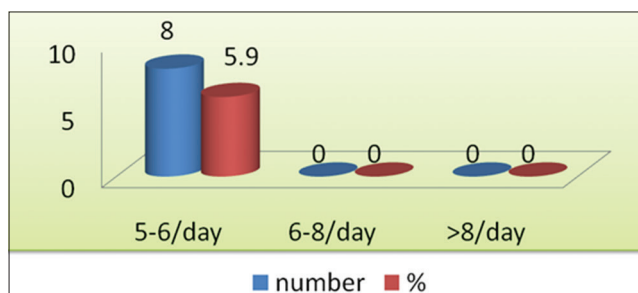
All cases were selected for LNG-IUS insertion was anemic. Most (74.3%) were mildly anemic while 25.7% were moderately anemic.



Graph 4: Menstrual blood loss after 3 months of levonorgestrel intrauterine system insertion



Graph 5: Menstrual blood loss after 6 months of levonorgestrel intrauterine system insertion

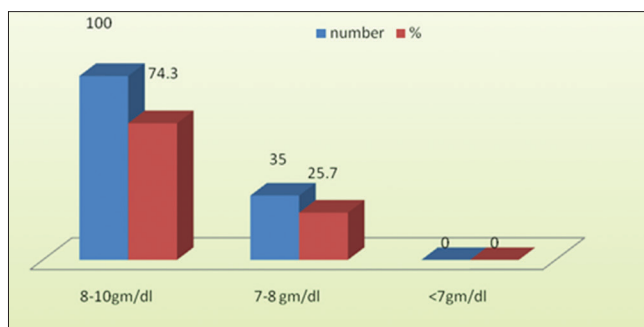


Graph 6: Menstrual blood loss after 1 year of levonorgestrel intrauterine system insertion

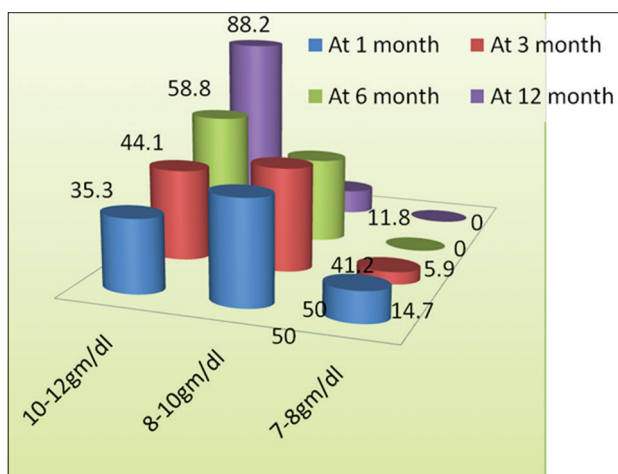
Graph 8 shows a continuous increased trend in hemoglobin level after use. 88.2% achieved hemoglobin level more than 10 g/dl after 1 year of use.

Graph 9 shows a continuous increased trend in hemoglobin level after use. 90% achieved hemoglobin level more than 10 g/dl 1 year posthysterectomy (Table 2).

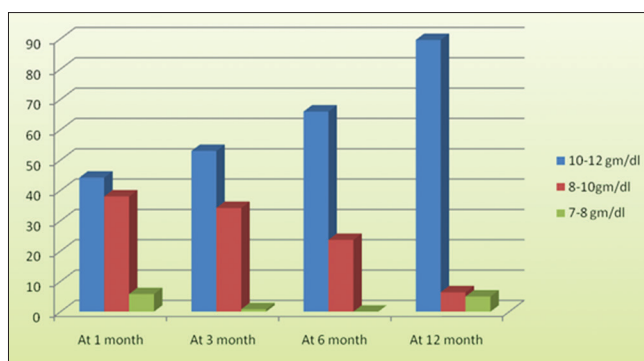
Although spotting and intermenstrual bleeding p/v were a problem initially for few after 1 year of insertion none of them were having these problems at 1 year. Oligomenorrhea/amenorrhea was seen in 19 cases after 1 year.



Graph 7: Hemoglobin level before hysterectomy or levonorgestrel intrauterine system insertion



Graph 8: Hemoglobin level at 1, 3, 6, and 12 months post-insertion of levonorgestrel intrauterine system



Graph 9: Hemoglobin level at 1, 3, 6, and 12 months posthysterectomy

Pelvic pain and mood changes were seen only in 4 and 2 cases, respectively, and at 1 year 91.9% cases were satisfied with the procedure. 23 cases did not come for follow-up.

**DISCUSSION**

Approximately 30% of women with perimenopause experience heavy bleeding during menstruation [7]. While in nearly half of all cases no organic pathology is found, a number of risk factors may contribute to the development of HMB [7].

- 60% of women presenting with complain of HMB were perimenopausal and 41% were not having any major organic pathology. All cases were using >5 pads/day before any procedure.

**Table 2: Health-related quality of life after 1 year**

Indicators n (%)	n (%)	
	Following LNG-IUS insertion (n=112)	Following hysterectomy (n=156)
Spotting	0 (0)	0 (0)
Intermenstrual bleeding	0 (0)	0 (0)
Oligo/amenorrhea	19 (17.7)	0 (0)
Mood changes	2 (1.5)	0 (0)
Pelvic pain	4 (3.3)	5 (2.9)
Content with the procedure	103 (91.9)	151 (96.8)

LNG-IUS: Levonorgestrel intrauterine system

- At 1 month post-insertion 78.6% cases were using <5 pads/day. Irvine *et al.* found mean MBL of 85.1% at 1 month post-insertion [8] whereas Tang and Lo [9] found a reduction of 54% MBL at 1 month.
- At 3 month post-insertion 89.3% cases achieved normal MBL which is nearer to Anderson and Rybo [10] who found 86% reduction in MBL but Barrington and Simpkins [11] got only 74% cases of normal menstruation at 3 months.
- At 6 months and 1 year post-insertion 92.9% cases achieved normal MBL which is higher than Fedele *et al.* [12] and Milson *et al.* who found 80% and 88% achieved normal menstruation.
- Hb% level shows an increased trend both after LNG-IUS and hysterectomy at 1, 3, 6, and 12 months without supplementing any hematinic and there was no significant difference between the two (p=0.534). The same was also noticed by Crosignani *et al.* [13], Anderson and Rybo [10], and Scholten *et al.* [14].
- Spotting and intermenstrual bleeding was seen in no case after 1 year though it was a problem in early months.
- Oligo/Amenorrhea was noticed by 19 cases in our study (p=0.035)
- Pelvic pain was seen in both conditions very rarely.
- Most patients were happy with LNG-IUS except 4 cases out of 112 opt for hysterectomy later due to persistent bleeding.
- In a study by Garg *et al.* [15] at 6 months post-IUS insertion 10% had amenorrhea, 40% had irregular spotting (decreased flow), 23.33% had infrequent bleeding, 20% had scanty regular bleeding, and only two women (6.66%) had irregular heavy bleeding.
- In the study by Yazbeck *et al.* [16] 86.1% women with dysfunctional uterine bleeding were very satisfied with the treatment with LNG-IUS as an alternative to hysterectomy.

**CONCLUSION**

There is the high effectiveness of LNG-IUS in the treatment of HMB in perimenopausal women. Significant cases were having oligomenorrhea/amenorrhea after 1 year of LNG-IUS insertion. The patient satisfaction and acceptance were comparable to hysterectomy. It is a safe, effective, and acceptable mode of treatment and can be a good alternative to hysterectomy for HMB due to much benign etiology. A Cochrane meta-analysis of 8 trials comparing medical treatment to all surgical methods found that although endometrial destruction, and especially hysterectomy, more effectively reduces MBL, the LNG-IUS provides an equivalent improvement in the quality of life [17].

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