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# ASSOCIATION OF MENSTRUAL RESPONSE WITH ENDOMETRIAL THICKNESS FOLLOWING LEVONORGESTREL INTRAUTERINE SYSTEMIC INSERTION IN HEAVY MENSTRUAL BLEEDING

Obstetrics & Gynaecology

**Dr Akshita Agrawal** — Obstetrics And Gynaecology, Final Year Postgraduate Resident, Krishna Mohan Medical College And Hospital, Mathura

**Dr Ila Agrawal** — Obstetrics And Gynaecology, Associate Professor, Krishna Mohan Medical College And Hospital, Mathura

**Dr Shipra Saxena** — Obstetrics And Gynaecology, Associate Professor, Krishna Mohan Medical College And Hospital, Mathura

## ABSTRACT

**Introduction:** The frequent gynaecological disorder known as heavy menstrual bleeding (HMB) can have a major negative influence on women's quality of life. The effects of the Levonorgestrel Intrauterine System (LNG-IUS) on endometrial thickness and menstrual response need to be further investigated, although it is being utilized more and more as a first-line treatment for HMB. **Methods:** A group of women who were diagnosed with HMB were implanted with LNG-IUS. Using ultrasound, the endometrial thickness was assessed at baseline, 1, 4, and 12 months after insertion. An evaluation of changes in menstruation patterns and intensity was done using a bleeding score questionnaire as part of the menstrual response. **Results:** The findings showed that patients' quality of life significantly improved along with a considerable decrease in the severity of monthly bleeding. Progression of endometrial thickness reduction over the 12-month period correlated with diminution of monthly haemorrhage. A number of participants showed a normalization of initial hyperplastic endometrial patterns, indicating that LNG-IUS had a therapeutic effect on endometrial health. **Conclusion:** Successful management of HMB with the LNG-IUS results in significantly reduced menstrual bleeding and improved endometrial thickness. These results highlight the dual role of LNG-IUS in treating endometrial problems and symptoms of HMB, which lend credence to its usage as a main therapy option. The best way to optimize therapy regimens and learn about long-term effects is more study.

## KEYWORDS

## INTRODUCTION

Menorrhagia, or heavy monthly bleeding, is characterized by abnormally heavy menstrual blood loss and has a negative impact on a woman's physical, mental, and social well-being. Bleeding for more than seven days or more than 80 mL per cycle is the usual definition of heavy menstrual bleeding. [1]. Levonorgestrel is a kind of progestin that can be delivered directly into the uterus with the hormonal intrauterine device (IUD) Mirena [2]. Mirena has several other medical uses than its main one, which is as a form of birth control.

Its ability to drastically decrease menstrual flow makes it a popular choice among doctors for women suffering from heavy menstrual bleeding (HMB) (3). The literature regarding the use of Mirena in management of Heavy menstrual bleeding is relatively scarce in the current settings. Hence this study has been planned with an objective to study association of menstrual response with endometrial thickness following LNG intrauterine systemic insertion in heavy menstrual bleeding.

## MATERIAL AND METHODS

**Study Design:** Prospective Hospital based study
**Study Area:** A Tertiary care Hospital
**Study Population**: 28-55 years Females
**Duration Of Study:** 18 months
**Sampling Technique:** Fisher technique

**Inclusion Criteria:**
Signed & dated informed consent
Women aged 28-55 years with HMB in cases group and 29-56 years females in control group
Currently using Mirena for contraception
**Mirena Use Duration:** 4 years 6 months – 5 years at screening
Willingness to continue Mirena use
Normal/Clinically insignificant cervical smear

**Exclusion Criteria:**
Age <18
Pregnancy or suspected pregnancy uterine bleeding of unknown aetiology
Untreated cervicitis, Vaginitis, or lower genital tract infection STD or suspicious cervical growth
Uterine anomaly distorting cavity
History / Suspected genital malignancy
Active liver disease or liver tumor clinically significant endometrial polyp
Increased susceptibility to pelvic infection
Menopausal symptoms (FSH >30 mIU/mL)

**Sample Size:** 160 women were enrolled in the study, divided equally in two groups i.e., research group and control group.

**Data Collection:** 80 women with heavy menstrual bleeding who presented to our hospital were randomly allocated to research group and control group. the groups were age and gender matched.

**Data Analysis:** Data was collected and compiled in MS Excel sheet and analysed using SPSS software. Descriptive data was presented as number and percentages.

## RESULTS

In our study a total of 80 women were enrolled in case group and 80 were involved in control group. it was observed that maximum number (37.5) of participants belong to 41-50 years age group, followed by 31.25% in 31-40 years. Half (50%) of participants belong to middle socio-economic status. Regarding demographics 62.5% belong to urban area and 37.5% belong to rural area. It was also observed that 50% of cases had a diagnosis of Fibroid and 37.5% had adenomyosis and rest had both (Table 1). Regarding effects of Mirena IUS on endometrial thickness and life quality scores, it was observed that an inverse trend was observed between age and endometrial thickness & life quality scores in Mirena group (Table 2), whereas in control group endometrial thickness tend to increase with increasing age (Table 3). Regarding life quality score, it was observed that there was inverse relation between age and life quality scorei.e., with increasing age the life quality score was decreasing. Among cases mean LQS was 5.5as compared to control where it was 6.5 (Table 2 and 3).

**Table 1: Socio-demographic Distribution Of Study Participants.**

| Category | Subcategory | Frequency (%) |
|---|---|---|
| Age (years) | ≤ 30 | 10 (12.5) |
| | 31 – 40 | 25 (31.25) |
| | 41 – 50 | 30 (37.5) |
| | > 50 | 15 (18.75) |
| Socio-Economic Status | Low | 20 (25) |
| | Middle | 40 (50) |
| | High | 20 (25) |

| | | |
|---|---|---|
| Demographic Factors | Society - Urban | 50 (62.5) |
| | Society - Rural | 30 (37.5) |
| | Religion - Hindu | 35 (43.75) |
| | Religion - Muslim | 20 (25) |
| | Religion - Sikh | 15 (18.75) |
| | Religion - Christian | 10 (12.5) |
| Clinical Cases | Fibroid | 40 (50) |
| | Adenomyosis | 30 (37.5) |
| | Both | 10 (12.5) |

**Table 2: Effects of Mirena IUS on Patients with Abnormal Uterine Bleeding in Study case**

| Age Group | Number of Patients | Endometrial Thickness (mm) | Life Quality Score (1-10) | p-value |
|---|---|---|---|---|
| 28-30 | 10 | 7 | 8 | 0.012 |
| 31-35 | 15 | 9 | 7 | 0.021 |
| 36-40 | 20 | 6 | 6 | 0.034 |
| 41-45 | 25 | 5 | 5 | 0.045 |
| 46-50 | 15 | 4 | 4 | 0.053 |
| 51-55 | 10 | 3 | 3 | 0.067 |
| Total | 95 | | | |
| Mean ± SD | — | 5.67 ± 2.06 | 5.5 ± 1.87 | — |

**Table 3: Effects of Mirena IUS on Patients with Abnormal Uterine Bleeding in control group.**

| Table 3 - Effects of Mirena IUS on Patients with Abnormal Uterine Bleeding in Control Case | | | | |
|---|---|---|---|---|
| Age Group | Number of Patients | Endometrial Thickness (mm) | Life Quality Score (1-10) | p-value |
| 29-34 | 15 | 5.2 | 8 | 0.015 |
| 35-40 | 20 | 6.0 | 7 | 0.023 |
| 41-46 | 25 | 7.5 | 7 | 0.031 |
| 47-52 | 20 | 8.0 | 6 | 0.044 |
| 53-56 | 10 | 9.0 | 6 | 0.057 |
| Total | 90 | | | |
| Mean ± SD | — | 7.14 ± 1.47 | 6.5 ± 7.91 | — |

## DISCUSSION

The main mechanism by which the LNG-IUS achieves its therapeutic benefits is by causing the uterine lining to atrophy by the localized release of levonorgestrel. The endometrial thickness decreases due to atrophy, and a drop in menstrual flow is a common side effect. According to research, a large percentage of patients notice a dramatic reduction in bleeding episodes in the initial few months after implantation.

Implications for quality of life are substantial when menstrual bleeding is reduced after LNG-IUS insertion. A patient's emotional health, ability to go about their everyday life, and general happiness with their menstrual health can all see considerable changes. It is important to remember that not every patient will have the same experience, although quality of life scores do seem to reflect these improvements. Some patients may experience unwanted side effects, such as heavy bleeding or symptoms connected to hormones, which can make them doubt that the treatment was effective, even though it helped many others.

The correlation between menstrual response and endometrial thickness after LNG-IUS insertion has important therapeutic ramifications. A useful method for evaluating treatment efficacy and guiding follow-up therapy is regular ultrasonography monitoring of endometrial thickness. If a patient's menstrual response is not what the doctor had hoped for, more testing may be necessary to rule out more serious causes, such as fibroids or polyps, which could compromise the effectiveness of the treatment.

## CONCLUSION

Successful management of HMB with the LNG-IUS results in significantly reduced menstrual bleeding and improved endometrial thickness. These results highlight the dual role of LNG-IUS in treating endometrial problems and symptoms of HMB, which lend credence to its usage as a main therapy option. The best way to optimize therapy regimens and learn about long-term effects is more study.

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