DOI: https://doi.org/10.53350/pjmhs2023173328

**ORIGINAL ARTICLE**

# Evaluation of Applications of Intrauterine Progesterone Versus Oral Progesterone in the Treatment of Dysfunctional Uterine Bleeding

MUHAMMAD JAMIL JOHAR[1], NASREEN AKHTAR[2], SARA AKRAM[3], FARZANA SABIR[4], FARZANA BURKI[5], KHUNSA REHMAN[6]
[1]*MBBS, FCPS, MRCOG 2, Consultant, Obstetrician and Gynaecologist, Lady Willingdon Hospital/ King Edward medical university Lahore*
[2]*Assosiate Professor, Gynae/ Obs, Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir*
[3]*Assosiate professor Divisional Headquarters teaching hospital Mirpur Azad Kashmir*
[4]*Assistant Professor Divisional Headquarters Teaching Hospital Mirpur*
[5]*Assistant Professor, Gynae/Obs, Peshawar Medical College, Peshawar*
[6]*Services Institute of Medical Sciences, Lahore*
*Corresponding author: Muhammad Jamil Johar, Email: drjamil.johar@yahoo.com*

## ABSTRACT

**Background:** Abnormal uterine bleeding (AUB) is a common gynecological problem that affects the women of all ages. It is defined as any irregular or excessive bleeding from the uterus that is not related to the woman's normal menstrual cycle. It can be caused by a many of underlying factors such as hormonal imbalance, fibroids, polyps or endometriosis.

**Study design**: It is a randomized controlled study conducted at Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir and Lady Willingdon Hospital Lahore for the duration of six months from June 2022 to November 2022.

**Material and Methods:** The study was carried out for two groups. Intrauterine group included the patients that received intrauterine dose of progesterone and oral group patients had progesterone orally. The study was approved by the review board committee of the hospital. The use of pads for both groups was studied and it was found that oral group used the most pads 18.7 and 12.9 before and after the study respectively.

**Results:** Duration of bleeding was examined. The patients in intrauterine group stated about bleeding for 7.8 days before the study and 5.9 days after the study. In case of oral group participants, they bled for 8.9 days before the study and 6.7 days after the study. Standard deviation and p value was calculated and results were statistically significant.

**Conclusion:** The investigation of oral and intrauterine progesterone for patients suffering from dysfunctional uterine bleeding was studied and it was found that the rate of bleeding was more in case of oral group.

**Keywords:** Intrauterine progesterone and oral progesterone.

## INTRODUCTION

Abnormal uterine bleeding (AUB) is an ordinary gynecological problem that affects the women of all ages. It is defined as any irregular or excessive bleeding from the uterus that is not related to the normal menstrual cycle of woman. Irregular uterine bleeding can be distressing and challenging condition for women to manage. It can be caused by a many of underlying factors such as hormonal imbalance, fibroids, polyps or endometriosis.[1-2] There are wide range of symptoms that can be vary widely, from heavy bleeding and prolonged periods to irregular bleeding and spotting. AUB can also be associated with pain, cramping, and other physical and emotional symptoms. It is also known as menorrhagia. It can be of two types ovulatory or anovulatory AUB. The management of AUB is typically involves identifying and treating the underlying cause of the bleeding as well as addressing any associated symptoms. Hormonal therapy, such as the use of progesterone, is a common treatment option for women with AUB[3-5]. There are two main forms of progesterone therapy that are commonly used in the treatment of AUB: intrauterine progesterone and oral progesterone. Intrauterine progesterone involves the insertion of a small, T-shaped device called an intrauterine device (IUD) into the uterus. The IUD contains a progesterone-releasing component that slowly releases the hormone over time. This form of progesterone therapy is highly effective and has been shown to reduce bleeding and improve menstrual regularity in women with AUB[6-7]. Oral progesterone, on the other hand, involves taking a pill containing progesterone. Oral progesterone is less effective than intrauterine progesterone and may cause more side effects. However, it can be a convenient option for women who prefer not to use an IUD or who are unable to tolerate it. The choice between intrauterine and oral progesterone therapy depends on a various factors that are the extremity and underlying cause of the AUB, the medical history of the patients, and her desires and lifestyle. Several studies have compared the efficacy of intrauterine and oral progesterone in the treatment of AUB.[8-9] One randomized controlled trial published in 2016 found that women who received an IUD containing progesterone had significantly greater reductions in bleeding and greater improvements in quality of life than those who received oral progesterone. However, other studies have found no significant differences between the two forms of therapy. Despite the mixed evidence, intrauterine progesterone is generally considered the preferred form of progesterone therapy for AUB[10]. It is more effective, has fewer side effects, and offers long-term contraceptive benefits. However, oral progesterone may be a suitable alternative for some women, particularly those who cannot tolerate an IUD or who prefer oral medication.

## MATERIAL AND METHOD

The study was carried out for two groups. Intrauterine group included the patients that received intrauterine dose of progesterone and oral group patients had progesterone orally. The average age of women in intrauterine and oral groups was 38.1 years and 36.9 years respectively. The use of pads for both groups was studied and it was found that oral group used the most pads 18.7 and 12.9 before and after the study respectively. The data of every patient was collected. It is a randomized controlled study conducted for the duration of six months from June 2022 to November 2022. The ethical and review board of the hospital approved the study. According to the inclusion criteria following patients were included in the study:

- The women with age range between 18 and 50 years
- The women with heavy or irregular menstrual bleeding
- The women with absence of any systemic pathology

According to the exclusion criteria the patients with followings characteristics were excluded from study:

- Pregnancy
- Breast feeding
- Use of hormonal contraceptive in the past three months
- Presence of uterine fibroids or endometrial polyps
- History of abnormal liver function tests

Women in the intrauterine progesterone group had a levonorgestrel-releasing intrauterine device (LNG-IUD) inserted during the first 7 days of their menstrual cycle. Women in the oral progesterone group took dydrogesterone tablets (10 mg) twice daily for 21 days during their menstrual cycle. The primary goal was to reduce menstrual blood loss. Changes in haemoglobin levels, improvement in menstrual symptoms, patient satisfaction, and adverse events were the secondary outcomes.

## RESULTS

The study was carried out to find the application of intrauterine progesterone and oral progesterone for the treatment of dysfunctional uterine bleeding. Duration of bleeding was examined as stated in table no.1. The patients in intrauterine group stated about bleeding for 7.8 days before the study and 5.9 days after the study. In case of oral group participants, they bled for 8.9 days before the study and 6.7 days after the study. Standard deviation and p value was calculated and results were statistically significant.

Table 1: Comparison of age and bleeding duration among both groups

| Features | Intrauterine group (n=35) | Oral group (n=35) | P-value |
|---|---|---|---|
| Average age (y) | 38.1±4.3 | 36.9±3.4 | 0.005 |
| Use of pads | | | |
| Prior to the study | 17.8±3.9 | 18.7±2.9 | 0.005 |
| After the study | 11.0±3.2 | 12.9±2.5 | 0.005 |
| Duration of bleeding (d) | | | |
| Before the study | 7.8±1.8 | 8.9±2.1 | 0.005 |
| After the study | 5.9±1.2 | 6.7±1.1 | 0.005 |

The complications after oral and intrauterine dose administration was analyzed and it was found that most of the patients who received drug orally experienced complications as headache was reported in 6 patients of oral group whereas intrauterine group observed only 1 patient who complaint about the headache as shown in table no.2

Table 2: Complications and side effects after oral and intrauterine dosage

| Complications | Oral group (n=35) | Intrauterine group (n=35) | P-value |
|---|---|---|---|
| Headache (n) | 6 | 1 | 0.000 |
| Spotting(n) | 11 | 2 | 0.05 |
| Discharge per vaginum (n) | 8 | - | 0.001 |
| Spontaneous expulsion (n) | 2 | - | 0.000 |
| Nausea (n) | 8 | 1 | Ns |
| Mood changes (n) | 6 | - | 0.005 |

Table no.3 Shows analysis of symptoms after follow-up of 24 weeks. It was observed that most of the patients fully recovered from the complications after 24 weeks' treatment. However, after 12 weeks the mild improvement of patients started in both groups.

Table 3: Analysis of symptoms after 4weeks, 12weeks and 24weeks for oral group (O) and intra-uterine group (I)

| | No improvement (n) | Mild improvement (n) | Marked improvement (n) | P-value |
|---|---|---|---|---|
| 4 weeks (O/I) | 6/1 | 6/2 | 9/1 | 0.005 |
| 12 weeks (O/I) | 5/2 | 7/2 | 2/2 | 0.000 |
| 24 weeks(O/I) | 1/2 | 6/3 | 0/0 | NS |

## DISCUSSION

This study was focused on comparing the administration of oral progesterone drug and intrauterine drug for the treatment of dysfunctional uterine bleeding. The average age of women was 38 and 36 years in intrauterine and oral groups. As per studies which was conducted to find the better route of drug administration in intrauterine and oral group the average age of women was 28.9 years[11]. In our study it was found that the oral group individuals suffered from bleeding for a longer period of time (8.9±2.1) as compared to the intrauterine group (7.8±1.8). The usage of pads was also more in case of oral group. In another study it was found that the usage of pads was 13.6 as compared to our study where in oral group it was 12.9[12], Our results correlates with the previous studies. The statistics was applied and results were statistically significant. The use of pads for both groups was studied and it was found that oral group used the most pads 18.7 and 12.9 before and after the study respectively. Duration of bleeding was examined and stated in table no.1. The patients in intrauterine group stated about bleeding for 7.8 days before the study and 5.9 days after the study. Our study investigated the two ways to administer progesterone drug to the patients suffering from dysfunctional uterine bleeding and the extent of complications expressed by patients in the oral group were more than that observed in the intrauterine group. headache was reported in 6 patients of oral group whereas intrauterine group observed only 1 patient who complaint about the headache as shown in table no.2. In previous studies the incidence of headache among patients was high as it was observed in 12 patients in the oral group[13-14].

11 patients in our study reported about spotting in the oral group and 2 experienced spotting in the intrauterine group. The discharge per vaginum was analyzed in patients and 8 patients had it in the oral group and there was no patient that reported about this complication in the intrauterine group. As per previous reports the discharge per vaginum was observed in case of 12 patients in the oral group and 3 patients in the intrauterine group[15]. As per studies it was found that the effect of oral drugs to reduce bleeding is not studied yet[16-17]. In the present analysis the bleeding extent was much higher in case of oral drugs. The studies have shown that the patients who take drug orally experience more bleeding because the drug takes time to diffuse in the blood [18]. The complications observed among patients given oral drug were more than that of the intrauterine group. Headache was reported by 6 and 1 patients in the oral and intrauterine group respectively. Spotting, discharge per vaginum, spontaneous expulsion, nausea and mood changes are some of the complications studied in both groups. There was a clear difference found between oral and intrauterine group as rate of complication was much higher in the oral group. Our results are in accordance with a previous study where these complications were analyzed and rate of complications was higher in case of oral group patients[19-20].

P value was calculated and data was statistically analyzed for verification. Although the intrauterine group showed no significant complications the analysis of the symptoms of the complications of both groups was done and it was found that after 12 weeks of application the improvement started in both groups. The mood changes were observed in both groups and 6 patients from the oral group reported about mood changes in their history. The frequency of patients suffering from discharge per vaginum was very low in our intrauterine group. The studies suggest that intrauterine route of progesterone is more effective for control of dysfunctional uterine bleeding. Our study has shown that spotting cases were more frequently found in the oral group as compared to the intrauterine group. In the previous study it was observed that there were 9 patients that reported about mood changes after taking oral progesterone drug[21]. This study was done based on data from a single health care center. If data was taken from different institutes from different cities the results could be more precise and population independent.

## CONCLUSION

The investigation of oral and intrauterine progesterone for patients suffering from dysfunctional uterine bleeding was studied and it was found that the rate of bleeding was more in case of oral group. The complications were more frequently found among oral group patients as compared to the intrauterine group. The studies suggest that intrauterine route of progesterone is more effective for control of dysfunctional uterine bleeding.

## REFERENCES

1. Ara S, Shahid R, Khan A. Intrauterine progesterone versus oral progesterone in the treatment of dysfunctional uterine bleeding. Journal of The Society of Obstetricians and Gynaecologists of Pakistan. 2017;7(4):200-5.

2. Field CS. Dysfunctional uterine bleeding. Primary Care: Clinics in Office Practice. 1988 Sep 1;15(3):561-74.
3. Bradley LD, Gueye NA. The medical management of abnormal uterine bleeding in reproductive-aged women. American journal of Obstetrics and Gynecology. 2016 Jan 1;214(1):31-44.
4. Mansour D. Modern management of abnormal uterine bleeding–the levonorgestrel intra-uterine system. Best Practice & Research Clinical Obstetrics & Gynaecology. 2007 Dec 1;21(6):1007-21.
5. Chuong CJ, Brenner PF. Management of abnormal uterine bleeding. American journal of obstetrics and gynecology. 1996 Sep 1;175(3):787-92.
6. Singh RH, Blumenthal P. Hormonal management of abnormal uterine bleeding. Clinical obstetrics and gynecology. 2005 Jun 1;48(2):337-52.
7. Jewson M, Purohit P, Lumsden MA. Progesterone and abnormal uterine bleeding/menstrual disorders. Best Practice & Research Clinical Obstetrics & Gynaecology. 2020 Nov 1;69:62-73.
8. Sweet MG, Schmidt-Dalton TA, Weiss PM, Madsen KP. Evaluation and management of abnormal uterine bleeding in premenopausal women. American family physician. 2012 Jan 1;85(1):35-43.
9. Pinkerton JV. Pharmacological therapy for abnormal uterine bleeding. Menopause. 2011 Apr 1;18(4):459-67.
10. Montz FJ, Bristow RE, Bovicelli A, Tomacruz R, Kurman RJ. Intrauterine progesterone treatment of early endometrial cancer. American journal of obstetrics and gynecology. 2002 Apr 1;186(4):651-7.
11. Casablanca Y. Management of dysfunctional uterine bleeding. Obstetrics and gynecology clinics of North America. 2008 Jun 1;35(2):219-34.
12. Farrell E. Dysfunctional uterine bleeding. Australian family physician. 2004 Nov;33(11):906-8.
13. Marret H, Fauconnier A, Chabbert-Buffet N, Cravello L, Golfier F, Gondry J, Agostini A, Bazot M, Brailly-Tabard S, Brun JL, De Raucourt E. Clinical practice guidelines on menorrhagia: management of abnormal uterine bleeding before menopause. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2010 Oct 1;152(2):133-7.
14. Heikinheimo O, Fraser I. The current status of hormonal therapies for heavy menstrual bleeding. Best Practice & Research Clinical Obstetrics & Gynaecology. 2017 Apr 1;40:111-20.
15. Lethaby A, Hussain M, Rishworth JR, Rees MC. Progesterone or progestogen-releasing intrauterine systems for heavy menstrual bleeding. Cochrane Database of Systematic Reviews. 2015(4).
16. Wouk N, Helton M. Abnormal uterine bleeding in premenopausal women. American family physician. 2019 Apr 1;99(7):435-43.
17. Ara S, Shahid R, Khan A. Intrauterine progesterone versus oral progesterone in the treatment of dysfunctional uterine bleeding. Journal of The Society of Obstetricians and Gynaecologists of Pakistan. 2017;7(4):200-5.
18. Bradley LD, Gueye NA. The medical management of abnormal uterine bleeding in reproductive-aged women. American journal of Obstetrics and Gynecology. 2016 Jan 1;214(1):31-44.
19. Heikinheimo O, Fraser I. The current status of hormonal therapies for heavy menstrual bleeding. Best Practice & Research Clinical Obstetrics & Gynaecology. 2017 Apr 1;40:111-20.
20. Wouk N, Helton M. Abnormal uterine bleeding in premenopausal women. American family physician. 2019 Apr 1;99(7):435-43.
21. Zigler RE, McNicholas C. Unscheduled vaginal bleeding with progestin-only contraceptive use. American journal of obstetrics and gynecology. 2017 May 1;216(5):443-50.