

# Effect of Tranexamic Acid in Reducing Pictorial Blood Loss Assessment Chart Score in Dysfunctional Uterine Bleeding - A descriptive case study to see the effects of using tranexamic acid in reduction blood loss in DUB.

SABA ILYAS A.MALIK<sup>1</sup>, HUMAIRA DURRANI<sup>2</sup>, AMBREEN NASIR<sup>3</sup>, SHABANA KHOKHAR<sup>4</sup>, WAJIHA RIZWAN<sup>5</sup>, SHEHNAZ KAUSAR<sup>6</sup>

<sup>1,4,5</sup>Assistant Professor, <sup>2,3</sup>Senior Registrar, <sup>6</sup>Professor

<sup>1-6</sup>Department of Obstetrics & Gynaecology, Rahber Medical & Dental College/Punjab Rangers Teaching Hospital, Lahore

Correspondence to: Dr Saba Ilyas Malik, Contact No: 03342811178, Email: dr.sabailyasmalik@gmail.com

## ABSTRACT

**Background:** The bleeding which occurs without any demonstrable organic cause is known as dysfunctional uterine bleeding. Most commonly DUB presents at the extreme of ages as 20% in adolescence and 40% in over age of 40. A number of medications are available for the management of heavy menstrual blood loss. Antifibrinolytics like plasminogen activators inhibitors is well recognized treatment for heavy menstrual bleeding.

**Aim:** To establish exactly by research the effect of tranexamic acid in reducing the PBAC in patients of DUB.

**Study design:** Descriptive case series

**Setting:** Gynae & Obstetrics Department in Punjab Rangers Hospital, Lahore

**Results:** Out of 225 patients 135(60%) were found between 25-30 years and 90(40%) were aged between 31-35 years. The calculated Mean and Standard Deviation were 29.34±4.23. Comparison of PBAC score before and after administration of tranexamic acid shows 387.2±97.45 ml blood loss before treatment and 186.8±103.76 after treatment and the difference was recorded as 200.4±6.31 while we recorded 51.75% reduction in blood loss after treatment.

**Conclusion:** We concluded that a remarkable reduction in PBAC after treatment with tranexamic acid in patients of Dysfunctional Uterine Bleeding.

**Keywords:** Dysfunctional uterine bleeding, medical treatment, PBAC, tranexamic acid

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## INTRODUCTION

The bleeding which occurs without any demonstrable organic cause is known as dysfunctional uterine bleeding<sup>1,2</sup>. It is most common gynecological disease. Due to the cause of heavy menstrual bleeding the DUB influence the women medically and socially. It is categorized into two types ovulatory and anovulatory. It is found commonly in extreme of ages with 20% in adolescence and 40% in age over 40 years<sup>3</sup>. 90% of DUB is anovulatory in perimenopausal age and adolescence.

Per cycle average blood loss is 30-60ml, an early population based study concluded that 60-80ml/cycle is the upper limit of normal blood loss, this upper limit of blood loss comes under definition of heavy menstrual bleeding. There are short comings to calculate actual volume loss because actual loss is highly subjective and its quantification is difficult objectively. However, menstrual blood loss can be assessed either in a semi quantitative manner relying on patients assessment of bleeding or by the use of pictorial aids<sup>4</sup>.

Fibrinolysis which is the dissolution of clots is caused by group of enzymes like plasminogen activators. In women presenting with heavy menstrual blood loss, levels of Plasminogen activators are raised in the endometrium as compared to women with normal menstrual loss<sup>5</sup>.

So due to this property plasminogen activator inhibitors have therefore been used as treatment for heavy menstrual bleeding. Due to the side effect of thrombogenic disease like deep venous thrombosis there is disinclination

to advice tranexamic acid in treatment of heavy menstrual bleeding. The rate of incidence of thrombogenic event in women who are taking tranexamic acid is comparable with the without premeditation group of women, studied for long time in Sweden<sup>6</sup>.

Antifibrinolytic tranexamic acid is the most effective medical therapy to treat DUB. Royal college of Obstetrician and Gynaecologist recommended tranexamic acid is initial therapy for women with heavy menstrual blood loss who require non-hormonal treatment<sup>7</sup>. Women with heavy menstrual blood loss have more enzymes, which dissolve the clot in lining of uterus as compared to women with normal menstrual. In order to prevent surgical management of HMB, in trial of reviews of the tranexamic acid it is commonly used to reduce the menstrual problems of flooding, leakage and sexual drives<sup>8</sup>.

In our daily practice in Punjab Rangers Hospital Lahore we found a lot of patients with Dysfunctional Uterine Bleeding, with a variety of treatment options available. There is no doubt that hysterectomy is the highly effective way of treating heavy menstrual bleeding, but the operative morbidity and long term morbidity is not considered in significant. In this study we want to prove that the medical management with tranexamic acid is safe and effective and should be done as first line treatment before surgery.

## MATERIALS AND METHOD

This study was carried out in Department of Obstetrics & Gynecology, Punjab Rangers Hospital, Lahore. This study was done in six months time. Sample size was 225 cases which were calculated with 95% confidence level, margin of error was 6.5% and taking expected percentage of reduction in PBAC score i.e. 60.3% in patients of

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Menorrhagia, 3 months after treatment with tranexamic acid. Sample technique was non-probability purposive sampling.

#### Inclusion Criteria

- 1) Women of age group 25 to 35 years with heavy periods lasting more than 7 days or occurring more frequently than every 21 days were abnormal.
- 2) No organic pathology e.g.: fibroid and adenomyosis (on ultrasonography), neoplasia (by tumor markers)
- 3) Infections (history and clinical (pus discharge)

#### Exclusion Criteria

- 1) Intermenstrual bleeding on history
- 2) Post coital bleeding on history
- 3) Bleeding disorders by getting her complete coagulation profile, platelets count.
- 4) Iatrogenic causes (contraceptive pills, IUCD) on history and ultrasound.

## RESULTS

A total of 225 patients who fulfilled inclusion and exclusion criteria were enrolled in the study to determine the percentage reduction in PBAC after treatment with tranexamic acid in patients of Menorrhagia. Age distribution of the patients reveal 135(60%) between 25-35 years and 90(40%) spanning 31-35 years. The calculated Mean and Standard Deviation were  $29.34 \pm 4.23$  (Table 1).

Comparison of PBAC score before and after administration of tranexamic acid is presented in table no.2, which show a  $387.2 \pm 97.45$  ml blood loss before treatment and  $186.8 \pm 103.76$  after treatment and the difference was recorded as  $200.4 \pm 6.31$  while we recorded 51.75% reduction in blood loss after treatment.

Table 1: Age Incidence of The Patients (n=225)

Age (in years)	n	%
25-30	135	60
31-35	90	40
Total	225	100
Mean and S.D	$29.34 \pm 4.23$	

Table 2: Comparison of PBAC Score before and after Administration of Tranexamic Acid (n=225)

PBAC(values in mean and SD)	
Before	$387.2 \pm 97.45$
After	$186.8 \pm 103.76$
Difference	$200.4 \pm 6.31$

Reduction= 51.1

## DISCUSSION

Menstrual problem is one of the main reasons to avail medical advice in women with heavy menstrual blood loss. There is a monumental effect of menstruation on lifestyle and employment of women and leads to embarrassment and inconvenience at work place 9. Heavy and recurrent menstrual bleeding is subjective complaint 10. It is defined as a total menstrual blood loss greater than 80ml per menstruation, objectively<sup>11</sup>.

Scores recorded by women by using non-laboratory method of Pictorial Blood Loss Assessment Chart (PBAC)

do semi-objective diagnosis of HMB. A score of 100 was used to describe menorrhagia by Highem et al (1990)<sup>12</sup>. The quantity of pads and tampons used and volume of soiling of pads each day is used to score. The size and number of clots were also part of this scoring. However, the quality of this PBAC chart is controversial and it is simple and very practical tool to assess amount of menstrual blood loss and easily matches with current practice used in our country. It has sensitivity of 86% and a specificity of 89%<sup>13</sup>.

In our daily practice in Punjab Rangers Hospital Lahore we face a lot of patients with Dysfunctional Uterine Bleeding, there are variety of treatment options and no doubt that hysterectomy is the highly effective way of treating heavy menstrual bleeding, but the operative morbidity and long term morbidity is not considered in significant. However, we planned to conduct this study by using tranexamic acid as it is safe and effective initial management before surgery.

Inhibition of degradation of fibrin is done by oral antifibrinolytic tranexamic acid. Its is newly introduced drug for treatment of DUB. Its dosage vary from individual to individual and it is given 3-4 times per day for the first four days of menstrual cycle<sup>14</sup>.

The three studies cited report a variable menstrual blood loss reduction and agree that there is a clinically significant role of tranexamic acid in reduction in menstrual blood loss in women presenting with heavy menstrual bleeding<sup>15,16</sup>.

A randomized control trial was conducted by John Bonnar and Brian L Sheppard 17 for comparison of efficacy and acceptability of ethamsylate, mefenamic acid, and tranexamic acid in the management of Heavy Menstrual Bleeding. The result was a 20% reduction of blood loss with Mefenamic acid (mean blood loss 186ml pre treatment, 148ml during treatment) with no reduction observed with Ethamsylate. Use of tranexamic acid there was significant reduction of using sanitary pads for assessment of blood loss.

In our study, we used only one drug i.e. tranexamic acid and found 51.75% following  $387.2 \pm 97.45$  ml before treatment and  $186.8 \pm 103.76$  ml after treatment, which is in contrast to the above mentioned study.

Kriplani A, kulshrestha V, Agarwal n, and Diwakar S<sup>18</sup> conducted a prospective randomised study using (PBAC) score chart and found decreased from 356.9 to 141.6 (60.3%) with tranexamic acid and concluded that tranexamic acid in 2 g/day dose is an effective and safe to use in DUB.

Tranexamic acid has possible risk of thrombosis so it has not been widely used in the united states; however, a long term study of women on tranexamic acid showed no difference in the rate of thrombosis<sup>19</sup>.

The limitation of the current study is that we did not included any side effects of the drug in our study, but no remarkable side effects were found during the study.

In view of the above mentioned international studies regarded the reduction in blood loss after treatment with tranexamic acid in patients of Dysfunctional uterine bleeding and the results of study on tranexamic acid its is safe and effective. It should be taken as first line drug before surgery and to avoid long term operative morbidity.

## CONCLUSION

We concluded that a remarkable reduction occurs in PBAC after treatment with tranexamic acid in patients with DUB.

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