ORIGINAL ARTICLE

COMPARISONOF EFFICACY OF MISOPROSTOL VS TRANEXAMIC ACID IN REDUCING INTRAOPERATIVE BLOOD LOSS IN MYOMECTOMY

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ABSTRACT

Objective: Comparison of efficacy of Misoprostol vs Tranexamic acid in reducing intraoperative blood loss in myomectomy.

Material & Methods: This was a prospective comparative study, conducted in Gynae "B" Unit MTI-Lady Reading Hospital Peshawar-Pakistan from Jan 2018 to Dec 2018 including fifty cases of fibroid uterus undergoing abdominal myomectomy. Twenty five cases were given misoprostol while other twenty five received Tranexamic acid preoperatively, by consecutive sampling. Women included in the study had fibroid uterus size ranging from 6-16 cm. These were all single intramural fibroids. Women with multiple fibroids, size more than 16 cm and those having submucosal or subserosal fibroid were excluded.

Results: Fifty women were included in the study who had single intramural fibroid with size ranging from 6-16 cm. Group A received 400 mcg Misoprostol per vaginal, I hour before surgery, and Group B received intravenous Tranexamic acid during the course of surgery. Mean age was 28.68 years in both groups. No significant difference was observed in sosciodemographic data in two groups. Intraoperative blood loss was significantly reduced in Misoprostol group (P< 0.014) with mean difference of blood loss of 171.092 ml compared to Tranexamic acid. There was no significant difference concerning the duration of surgery, fall in haemoglobin level and need of blood transfusion.

Conclusion: Good clinical outcome, easy to use and minimal side effects proves Misoprostol to be useful in reducing blood loss in myomectomy.

Keywords: Blood loss , Misoprostol, Tranexamic acid, Myomectomy.

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INTRODUCTION

Leiomyomas (fibroids) are benign lesions of the uterus which commonly cause menstrual disorders such as menorrhagia and can interferes with fertility[1]. For women who wish to preserve fertility myomectomy is the procedure of choices[2].Myomectomy, especially open abdominal procedures can be associated with a larger degree of blood loss. Many interventions have been used by surgeons to reduce bleeding during an operation for removing fibroids but it is unclear whether or not theseinterventions are effective.The data available suggest that vaginal insertion of misoprostol and infiltration of vasopressin into the uterine muscles are effective in reducing bleeding during myomectomy[3].

Twelve RCT's with 674 participants studied the effectiveness of various intraoperative interventions. These included intramyometrial vasopressin (two RCT) intra venous oxytocin (two RCT), peri cervical tourniquet (two RCT) and one RCT each for vaginal misoprostol, gelatin thrombin matrix, intra myometrial bupivacaine plus epinephrine, tranexamicacid, myomaenuclcation by morcellation.These trials found significant reduction in blood loss with misoprostol, vasopressin, and bupivacaine plus epinephrine, pericervical tourniquet and tranexamic acid. There was no evidence of an effect on blood loss with oxytocin. The trials did not assess the cost of the different interventions[4].

Significant reduction of intra operative blood loss was noted when vasopressin was injected into

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uterine muscle overlying myoma.It is well known that prostaglandin E2 analog such as misoprostol reduces intra operative blood loss by increasing myometrial contractions and reducing uterine artery blood flow by vaso constriction[5].

In a Randomized controlled trial by Afolabi et al intraoperative pericervical hemostatic tourniquet was compared to peri operative intavaginal misoprostol. Results showed significant reduction in blood loss in women receiving misoprostol6. In another randomized controlled trial comparing intravaginalDinoproston with placebo ,dinoproston was more effective in reducing intraoperative blood loss[7].

Only one RCT has studied the use of Tranexamic acid during gynecologic surgery. This was a double blind placebo control trial of intravenous TA 10 mg/kg (maximum 1 g) versus placebo during myomectomy. Perioperative blood loss was reduced in (TA) group with ($p<0.01$)[8].

MATETRIAL & METHODS

This was a prospective comparative study, conducted in Gynae "B" Unit MTI-Lady Reading Hospital Peshawar,Pakistan from January 2018 to December 2018. We included 50 women with single intramural fibroid, size ranging from 6-16 cm. These women were divided into two groups by consecutive sampling technique. One received vaginal misoprostol and other tranexamic acid intra operatively. Women with multiple fibroids, subserosal, submususal and size more than 16 cm were excluded from study. Socio demographic and clinical features were recorded such as age, parity and subfertility. Preoperative and postoperative hemoglobin was noted.

The protocol of this study was approved by the hospital ethical committee. All women were counselled before being considered eligible for inclusion in the study and consent was obtained from each participant. Group A received misoprostol 400 mcg pervaginal one hour prior to surgery. Group B was given Inj. Tranexamic acid 10 mg/kg (maximum 1g) loading dose, over 10 min followed by infusion of 1 ml/kg/min which ceased at the end of surgery[9].

Intraoperative blood loss in both groups was measured by change in weight of pre weighed gauze used during surgery. Where increase in weight by 1 gm equals to 1ml. Postoperative increase in weight of this gauze was used as means to measure blood loss intra operatively[10]. Weused standard weighed gauze each weighing 120 gm when dry. Postoperative increase in weight of soaked gauze indicated increase due to blood loss in ml. We used very sensitive weighing scale which was standard for all cases in which intra operative blood loss was measured.

Abdominal myomectomy was performed according to the standard technique by senior consultants in both groups, without use of intraoperative peri cervical tourniquet.

RESULTS:

In this study there was no difference between socio demographic and base line clinical features between the two groups. Mean age in both groups was 28.68 ± years with P value of 0.7 and difference of 0.64. Results were compiled and statistically analyzed using SPSS software version 22. To find out P value chi square test was applied.

All the patients presented with menorrhagia and sub fertility. Women in both the groups had single intramural fibroid with size between 6-16 cm, (P value 0.24) which is not significant. Blood loss in Misoprostol group was significantly less ($P<0.001$) compared to Tranexamicacid group. Mean difference in blood loss between the two groups was 171.092ml.We measured both pre & postoperative haemoglobin in both groups. Misoprostol group had smaller reduction i.e. 0.68 gm/dl per operation compared to 0.95 gm/dl Tranexamic acid group with P value(< 0.001). There was no need of blood transfusion in both the groups.

Table 1: Demographic Data.

Age Categories	Group A (Misoprostol) N= 25	Group B (Tranexamic Acid) N= 25	P value
Age Categories			
Age group (20-25 years)	7(28.0%)	9(36.0%)	.837
Age group (26-30 years)	9(36.0%)	8(32.0%)	
Age group (31-35 years)	6(24.0%)	4(16.0%)	
Age group (36-40 years)	3(12.0%)	4(16.0%)	
Size of fibroid			
6-10 cm	13 (52.0%)	17(68.0%)	.248
11-16 cm	12(48.0%)	8(32.0%)	
Parity of Women			
Nullipara	8(32.0%)	14(56.0%)	.172
P.inf	6(24.0%)	7(28.0%)	
S.Inf	6(24.0%)	2(8.0%)	
>P2	5(20.0%)	2(8.0%)	

Table 2: Blood loss in ml.

200-300 ml	11(44.0%)	5(20.0%)	.014
301-400 ml	10(40.0%)	4(16.0%)	
401-500 ml	2(8.0%)	9(36.0%)	
501-600 ml	2(8.0%)	5(20.0%)	
601-700 ml	0(0%)	2(8.0%)	

P value between categories of both groups, chi square test.

Table 3: Blood loss characteristics of both studied groups .

	Group 1 (N=25) Median, IQR	Group 2 (N=25) Median, IQR	p value
Blood loss mL	310, 120	481, 212	.001*

P* value for non-normal values, Mann-Whitney test

Table 4: Mean difference between the Age of both groups (n=50).

Overall Age(years) difference between the Group A (Misoprostol) and Group B (Tranexamic Acid) at baseline			
Group	Mean	Std. Dev.	P-value
Group A	28.68	5.573	.700
Group B	28.04	6.072	
Mean Difference	.640		

P value for normal values, 2-t-test

DISCUSSION

There are multiple options to reduce intra operative blood loss in myomectomy. These can be in the form of various surgical techniques like using pericervical tourniquet& uterine artery embolization. Medical treatment to reduce intra operative blood loss includes use of vasopressin,uterotonicslike Oxytocin, misoprostol and Tranexamic acid[11 12]. In a study by Sharifa et al rectal misoprostol was compared to omnipressin in abdominal Myomectomy and they found Misoprotol to be more effective in reducing intra operative blood loss[13].

Our study showed blood loss to be significantly reduced in Misoprostol group compared to Tranexamic acid group.Both these agents were used separately in various clinical trials and compared to placebo to find out their efficacy in reducing blood loss[14 15].

Till date we found no clinical data in which both these medical agents are compared with each other in terms of reducing blood loss. Shaaban MM et al showed that use of Tranexamic acid perioperatively reduce the blood loss (P< 0.01) and there was no need of blood transfusion when compared to control group1[16].

Liesal H and Kalogiannidis found misoprostol to be promising in reducing blood loss in openand minimally invasive myomectomy[17 18].

Ragab A and Badway A compared the single dose of intra vaginal Misoprostol todouble dose in Myomectomy. They observed that women who were given two doses 1 & 3 hours prior to surgery had more reduction in blood loss intraoperatively (P< 0.001).19 In present study we found intra operative blood loss to be reduced with use of Misoprostol with p value <0.001.There was significant difference in change of pre and postoperative haemoglobin level in misoprostol group (P< 0.001). No blood transfusion was required in either group. Postoperative anemia was treated with Parenteral / oral iron therapy. There was no difference in post- operative febrile morbidity and hospital stay in both groups .Same results were observed in a study by Abdel Hafeez M et al[20].

CONCLUSION

We need to include large number of women in future studies in which these medical agents like misoprostol and Tranexamic acid are used, as our study had only 25 cases in each group. Despite the small number of cases included, this study showed that Misoprostol is easy to use, inexpensive and effective method to reduce blood loss during Abdominal Myomectomy.

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AUTHOR’S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Shafqat T: Conception of Idea.

Yasmin S: Literature review.

Qazi Q: Script Writing.

Rahim R: Overall supervision.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.