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ORIGINAL ARTICLE

Comparison of Efficacy (Control of Primary Post-Partum Hemorrhage) after Vaginal Delivery between Balloon Inflation and Uterovaginal Packing

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ABSTRACT

Objective: To compare the efficacy between balloon inflation and uterovaginal packing in women with primary post-partum hemorrhage.

Material and methods: Between April 2021 to October 2021, total 120 patients with PPH after vaginal delivery, having age 18-40 years, both primi or multi paras either booked or un-booked were recruited for this randomized controlled trial. Place of study was Department of Obstetrics & Gynecology, Mardan Medical Complex. Efficacy (control of PPH) after vaginal delivery between balloon inflation and uterovaginal packing was compared.

Results: A total of 120 women with PPH were recruited. Mean age was 28.85 ± 5.83 years, in study group A and B mean age was 28.27 ± 5.96 years and 29.43 ± 5.66 years respectively. In study group A, balloon inflation methods was effective among 33 (55%) patients, while in study group B, uterovaginal packing method was successful among 51 (85%) patients for the control of PPH after vaginal delivery. Significantly (P=0.000) higher rate of efficacy was observed in study group B (uterovaginal packing group) as compared to study group A (balloon inflation group).

Conclusion: Results of this study showed higher rate of efficacy (control of primary post-partum hemorrhage) in patients of PPH managed with uterovaginal packing as compared to managed with balloon inflation. Most of the patients were multiparas and booked.

Keywords: PPH, balloon inflation, uterovaginal packing, vaginal delivery

INTRODUCTION

Among the top 5 leading causes of maternal deaths, postpartum hemorrhage (PH) is one of them.[1]

During pregnancy blood loss of 1000ml is well tolerated by the healthy women. Despite this, maternal mortality is most commonly caused by hypovolemic shock.[2] Effective management of PH requires teamwork, coordination, speed, laboratory back-up and blood and blood products.[3]

Maternal death rate in developing countries due to PH is 1/1000 deliveries and in UK, risk was 1/100000. Atony of uterus is the most known cause. Despite diligent control of the third stage of labour, hemorrhage can occur.[4] Due to pregnancy and childbirth related problems like PH, about 30000 women died in Pakistan every year and it is 21% of all maternal deaths.[5-6] When blood loss exceeds 500ml in the first 24 hours, it is known as primary postpartum hemorrhage (PPH). Any quantity less than 500ml loss of blood is considered physiological normal. When blood loss falls in the range of 1000ml to 1500ml then it can cause serious clinical deteriorations.[7] When uterotonic medications fail to control significant postpartum bleeding, numerous strategies have recently been tested to prevent surgery. Balloon tamponade with an intrauterine catheter (i.e. bakery balloon, Sengstaken–Blakemore balloon, cervical catheter, and condom as balloon) has shown to be effective.[8]

MATERIAL AND METHODS

Between April 2021 to October 2021, total 120 patients with PPH after vaginal delivery, having age 18-40 years, both primi or multi paras either booked or un-booked were recruited for this randomized controlled trial. Place of study was Department of Obstetrics & Gynecology, Mardan Medical Complex.

Patients with C-section, patients having twin pregnancy (confirmed on ultrasound) and patients with any bleeding disorder were excluded from the study. Before commencement of study, approval was taken from review board. Written informed consent was taken from every patient. History of all the patients was taken. Two study groups A and B were created by using lottery method. Patients of study group A were managed with balloon inflation (condoms were used) and patients of study group B were managed with uterovaginal packing. All patients were examined for control of primary post-partum hemorrhage after 24 hours and findings in term of efficacy (Yes/No) were noted on pre-designed proforma.

SPSS version 20 was used to analyze the data. Age was presented in form of mean and SD while categorical variables were presented in form of frequencies. Difference of efficacy between the groups was compared by using the chi-square test. A p value of 0.05 was taken as significant statistically.

RESULTS

A total of 120 women with PPH were recruited. Mean age was 28.85 ± 5.83 years, in study group A and B mean age was 28.27 ± 5.96 years and 29.43 ± 5.66 years respectively. In study group A, balloon inflation methods was effective among 33 (55%) patients, while in study group B, uterovaginal packing method was successful among 51 (85%) patients for the control of PPH after vaginal delivery. Significantly (P=0.000) higher rate of efficacy was noted in study group B (uterovaginal packing group) as compared to study group A (balloon inflation group). (Table 1)

In age group 18-30 years, total 38 (63.33%) patients belonged to study group A while 32 (53.33%) patients belonged to study group B. Significantly (P=0.007) higher rate of efficacy was observed in study group B as compared to study group A. In age group 31-40 years, total 22 (36.67%) patients belonged to study group A while 28 (46.67%) patients belonged to study group B. Management was found successful in 14 (63.64%) patients and 25 (89.29%) patients respectively in group A and B. Difference of efficacy was significant (P=0.030). (Table 2) In group A and B, primiparas were 15 (25%) and 10 (16.67%) respectively. Efficacy was noted in 9 (60%) patients and 9 (90%) patients respectively in group A and B, but difference was not significant (P=0.179). Among multiparas, out of 45 (75%) patients of study group A, management was effective in 24 (53.33%) patients. Out of 50 (83.33%) multiparas of study group B, efficacy was noted in 42 (84%) patients. Difference of efficacy was significant (P=0.001) between the both groups. (Table 3) Total 47 (78.33%) patients of study group A and 45 (75%) patients of study group B was booked and management was found effective in 27 (57.45%) patients and 39 (86.67%) patients respectively in study group A and B and difference was significant (P = 0.002). Out of 13 (21.67%) un-booked patients of study group A, management was effective in 6 (46.15%) patients. Out of 15 (25%) un-booked patients of study group B, efficacy was found in 12 (80%) patients. Difference was

not significant (P= 0.114)). (Table 4) Total 35 (58.33%) patients of study group A and 38 (63.33%) patients of study group B belonged to rural areas. Management was found effective in 20 (57.14%) patients and 31 (81.58%) patients of study group A and B respectively and difference was significant (P=0.023). Total 25 (41.67%) patients of study group A and 22 (36.67%) patients of study group B belonged to urban areas. Management found effective in 13 (52%) patients and 20 (90.91%) patients respectively in study group A & B and difference was significant (P = 0.004). (Table 5)

Table 1: Comparison of efficacy between the both groups

Group	Efficacy		Total	P value
	Yes (%)	No (%)		
A (Balloon inflation)	33 (55)	27 (45)	60	0.000
B (Uterovaginal packing)	51 (85)	9 (15)	60	

Table 2: Comparison of efficacy between the both groups for age

Group	Efficacy		Total	P value
	Yes (%)	No (%)		
Age group 18-30 years				
A	19 (50)	19 (50)	38 (63.33)	0.007
B	26 (81.25)	6 (18.75)	32 (53.33)	
Age group 31-40 years				
A	14 (63.64)	8 (36.36)	22 (36.67)	0.030
B	25 (89.29)	3 (10.71)	28 (46.67)	

Table 3: Comparison of efficacy between the both groups for parity

Group	Efficacy		Total	P value
	Yes (%)	No (%)		
Primipara				
A	9 (60)	6 (40)	15 (25)	0.179
B	9 (90)	1 (10)	10 (16.67)	
Multipara				
A	24 (53.33)	21 (46.67)	45 (75)	0.001
B	42 (84)	8 (16)	50 (83.33)	

Table 4: Comparison of efficacy between the both groups for booking status

Group	Efficacy		Total	P value
	Yes (%)	No (%)		
Booked cases				
A	27 (57.45)	20 (42.55)	47 (78.33)	0.002
B	39 (86.67)	6 (13.33)	45 (75)	
Un-booked				
A	6 (46.15)	7 (53.85)	13 (21.67)	0.114
B	12 (80)	3 (20)	15 (25)	

Table 5: Comparison of efficacy between the both groups for residential area

Group	Efficacy		Total	P value
	Yes (%)	No (%)		
Rural Areas				
A	20 (57.14)	15 (42.86)	35 (58.33)	0.023
B	31 (81.58)	7 (18.42)	38 (63.33)	
Urban areas				
A	13 (52)	12 (48)	25 (41.67)	0.004
B	20 (90.91)	2 (9.09)	22 (36.67)	

DISCUSSION

This study was planned with aim of comparison of efficacy (control of primary post-partum hemorrhage) after vaginal delivery between balloon inflation and uterovaginal packing.

A total of 120 women with PPH were recruited. Mean age was 28.85 ± 5.83 years, in study group A (Balloon inflation group) and B (Uterovaginal packing group) mean age was 28.27 ± 5.96 years and 29.43 ± 5.66 years respectively.

In study group A, balloon inflation methods was effective among 33 (55%) patients, while in study group B, uterovaginal packing method was successful among 51 (85%) patients for the control of PPH after vaginal delivery. Significantly (P=0.000) higher rate of efficacy was noted in study group B (uterovaginal packing group) as compared to study group A (balloon inflation group).

In one study by Ujala et al,[9] total 104 patients with PPH after vaginal were selected. Mean age of the patients in balloon inflation group was 27.69±3.68 years and in uterovaginal group was 27.60±3.64 years. Control of PPH was achieved in 88.46% patients managed with uterovaginal packing while in 65.38% patients managed with balloon inflation. In another study by Ashraf et al,[10] total 212 patients of PPH were selected and two equal groups, balloon inflation group and uterovaginal group were created. Mean age of the patients of balloon inflation group was 29.22+6.52 years and uterovaginal group was 29.05+ 6.802 years. Control of PPH was achieved in 73.6% patients of balloon inflation group while in 59.4% patients of uterovaginal group. Findings of this study are not correlate with our findings. In study done by Nizam et al,[11]control of primary post-partum hemorrhage with uterovaginal packing was 89.14% which is in-agreement with our study. Control of PPH was reported by Akhter et al in 56.5% patients managed with balloon inflation technique.[12] In another study success rate was 90% for the management of PPH with balloon inflation technique.[13] In study of Ali et al,[14] total 42 patients of PPH managed with uterovaginal packing and success rate of the procedure was 86%.

CONCLUSION

Results of this study showed higher rate of efficacy (control of primary post-partum hemorrhage) in patients of PPH managed with uterovaginal packing as compared to managed with balloon inflation. Most of the patients were multiparas and booked.

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