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Research Article

**BLS (B-LYNCH SUTURE) VERSUS IBT (INTRAUTERINE
BALLOON TAMPONADE): A RANDOMISED CONTROL
TRIAL ON SPPH (SEVERE POST-PARTUM HAEMORRHAGE)**¹Dr. Maira Shahid, ² Dr. Saba Zakir, ³Dr. Amna Asghar¹King Edward Medical University²Nawaz Sharif Medical College, Gujrat³Nawaz Sharif Medical College, Gujrat**Abstract:**

Objective: The research objective is to determine whether B-Lynch Suture (BLS) is more successful or Intrauterine Balloon Tamponade (IBT) while managing a Severe Post-Partum Haemorrhage (SPPH).

Materials & Methods: Our research was a randomized controlled trial, which was carried out at Allied Hospital, Faisalabad (September 2016 to October 2017). A subject size of 104 females was selected. All subjects were patients of SPPH, having age group of twenty to thirty-five, gestational time of thirty-six to forty-two weeks. Excluding criteria was a ruptured uterus, genital tract trauma, bleeding disorder and retained products of conception. Lottery method was used to make two groups of patients; Group A of IBT and Group B of B Lynch Suture. Outcome variables were also noted.

Results: Patients at Group A & B were having a mean age of (27.70 ± 03.6) and (27.6 ± 03.6) years with gestation age of (39.9 ± 1.5) and (40 ± 1.7) weeks respectively. The success rate was 67.3% and 88.4% among group A & B respectively with a p-value that equals to 0.009.

Conclusion: The research concludes that using BLS is more successful (within 15 minutes, bleeding stops) than IBT in managing an SPPH and is recommended as the primary procedure for controlling SPPH.

Keywords: Intrauterine Balloon Tamponade (IBT), B Lynch Suture (BLS) and Severe Post-partum Haemorrhage (SPPH).

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INTRODUCTION:

PPG is the loss of blood estimated more than 500 ml and 1000 ml after vaginal and caesarean delivery respectively [1]. Worldwide, PPH is the major cause of maternal mortality and morbidity and this trend is increasing in most countries [2]. In developed countries, maternal deaths of thirty percent are caused by PPH [3]. With prevention and treatment, most of the deaths associated with PPH can be avoided. It is therefore of vital importance to treat/prevent PPH to achieve maternal health care and Millennium Development Goal. To fulfil this purpose, trained management with appropriate medications must be initiated; also, health policies must be informed through evidence-based guidance to improve health outcomes [4]. BLS compressed atonic uterus mechanically through brace sutures during SPPH [5]. Christopher Balogun-Lynch, born in 1947, developed this method, a gynaecological surgeon and consultant obstetrician at Milton Keynes General Hospital, Milton Keynes, and Buckinghamshire, England [6]. The introduction of this technique was presented in 1997 [7]. This technique can preserve fertility potentially, without pelvic surgery to stop PPH [8]. It is considered the best surgical approach for controlling SPPH without damaging the anatomical integrity of uterus [9]. In a research, Baskett TF et al show its 82% success in the management of SPPH [10]. As PPH is a complication faced in childbirth, capable of causing maternal morbidity and mortality, therefore, this study aims at comparing the success rate of BLS and IBT in the management of SPPH in the local population. The study outcomes will provide a preferred technique, which will bring higher success results in the reduction of maternal morbidity and mortality while managing SPPH. Moreover, the study will form ways to avoid hysterectomy in those patients and will give practical recommendations for the management of SPPH to preserve fertility.

MATERIAL AND METHODS:

Our research was a randomized controlled trial, which was carried out at Allied Hospital, Faisalabad (September 2016 to October 2017). We included all the patients diagnosed with SPPH according to operational definition, patients of the twenty to thirty-five years of age, parity two to five and gestational age 36 to 42 weeks. Whereas, we did not include genital tract trauma, perineal trauma, retained products of conception, ruptured uterus, bleeding disorder and warfarin/heparin. Lottery method was used to make two groups of patients; Group A of IBT and Group B of BLS. Outcome variables were also noted.

Patients (104) fulfilling the criteria of inclusion who were approved by the ethical committee were selected and hospitalised. Informed consent was taken in written after the acknowledgement of method, aim, potential hazards, and benefits of the study. Patients were also given the permission to withdraw their participation at any time during research without losing proper health-care. A gynaecologist with 05 years of post-fellowship experience was present to provide details to the researcher and patients both on the requirement. Patients with severe gestational hypertension were presented with lottery containing letter A for Group-A and B for Group-B to pick their respective groups. On admission, every patient's renal functions tests, a complete examination of urine, random blood sugar, complete blood count and ECG (on requirement) were recorded.

Patients of Group – A: IBT by the insertion of four Foleys catheter (size of No. 24Fr), lead into the uterine cavity through the cervix, with 80-100 ml balloon capacity. Fluid volume of 320 to 400 ml was by instilling warm saline into the balloons.

Patients of Group – B: To access vagina, BLS was applied in the position of lithotomy. A Pfannenstiel incision was made to open the abdomen. This incision was re-opened in the case of caesarean section for which the patient bled. Bi-manual compression was applied at first while an assistant swabbed out the vagina to prevent bleeding. The compression was aided by bi-manual compressing while pulling tight 02 lengths of sutures to minimize trauma. The suture was lying almost vertical. Stoppage of the bleeding with fifteen minutes after the procedure is considered a successful technique otherwise, hysterectomy is performed and the procedure is considered unsuccessful. The data was recorded on a Performa, predesigned, containing bio-data of patients in first and study variables in the 2nd part.

The data entry and analyzation were carried out through SPSS. The presentation of quantitative variables (i-e age) was entered as standard deviation and mean. However, the presentation of success/parity of IBT and BLS (Yes/No) was entered as percentage and frequency. The comparison of the success rate of Group A and B was carried out through Chi-Square with a p-value of ≤ 0.050 considered as significant. The variables were controlled through pre and poststratification and the results were recorded after applying Chi-Square with p-value ≤ 0.050 to be considered significant.

RESULTS:

Subjects of twenty to 35 years with (27.6 ± 3.6) years of mean age were selected. Patients at Group A & B were having a mean age of (27.70 ± 03.6) and (27.6 ± 03.6) years respectively. Among 104 patients 56.3% (55) were having an age of 26 – 30 years (Table – I and II). Patients were having 36 – 42 weeks of gestational age with (40 ± 1.6) weeks of mean gestational age. Mean gestational age of Group – A and B was (39.9 ± 1.5) and (40 ± 1.7) weeks respectively. Among 104 patients, 43.2% (45) were

having > 40 – 42 weeks of gestation age (Table – II). Parity, as mean in Group – A and B, was (03.4 ± 0.98) and (03.3 ± 1.0) respectively. Thirty-nine (37.5%) were having Para-2 (Table – I). Success rate (Stoppage of bleeding within 15 minutes) among patients of Group – A (IBT) and Group – B (BLS) was found to be 67.3% (35) and 88.46% (46) (Table – IV) respectively with p-value 0.009. Stratification of variables (i-e age and gestation) in Group – A and B according to the success rate is mentioned in Table – IV. We find a significant difference among the 31 – 35 and > 40 – 42 gestational age groups. The success of Parity stratification is mentioned in Table – IV.

Table – I: Age, Gestational Age and Parity: Number Vs Percentage

Variables		Group - A (52)		Group - B (52)		Total (104)	
		Number	Percentage	Number	Percentage	Number	Percentage
Age (years)	20 – 25	13	25	13	25	26	25
	26 – 30	28	53.85	27	51.92	55	52.88
	31 – 35	11	21.15	12	23.08	23	22.12
Gestational Age (weeks)	> 36 – 38	9	17.31	10	19.23	19	18.27
	> 38 – 40	21	40.38	19	36.54	40	38.46
	> 40 – 42	22	42.31	23	44.23	45	43.27
Parity	2	10	19.23	11	21.15	21	20.19
	3	19	36.54	20	38.46	39	37.5
	4	15	28.85	12	23.08	27	25.96
	5	8	15.38	9	17.31	17	16.35

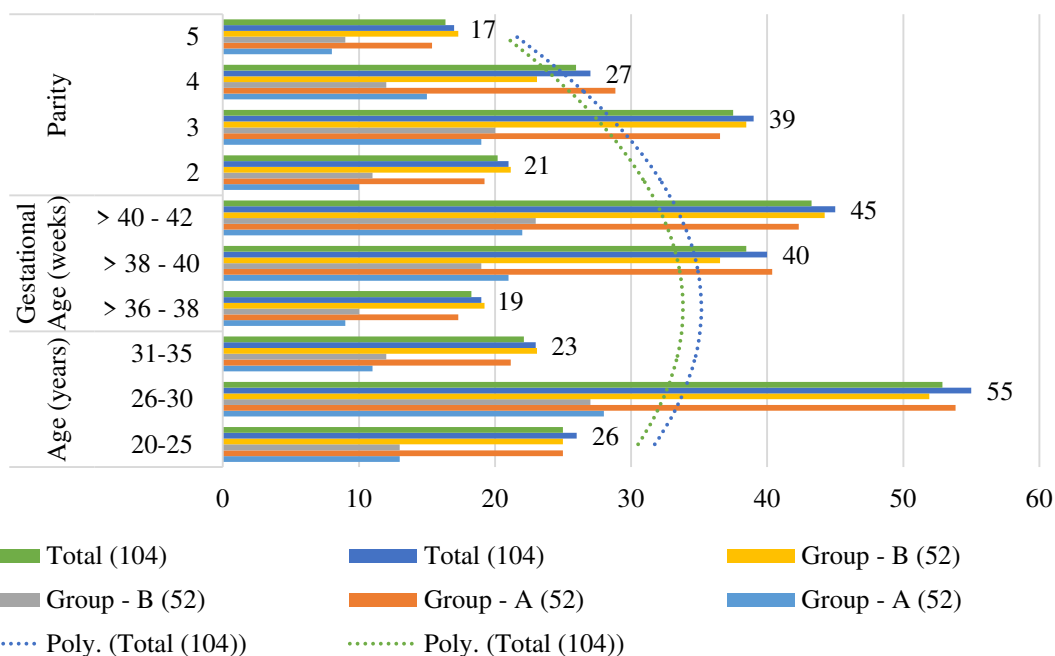
Age, Gestational Age and Parity: Number Vs Percentage

Table – II: Age, Gestational Age and Parity: Mean and SD

Variables	Group - A (52)		Group - B (52)		Total (104)	
	Mean	± SD	Mean	± SD	Mean	± SD
Age (years)	27.69	3.68	27.6	3.65	27.64	3.65
Gestational Age (weeks)	39.98	1.57	40.04	1.68	40.01	1.62

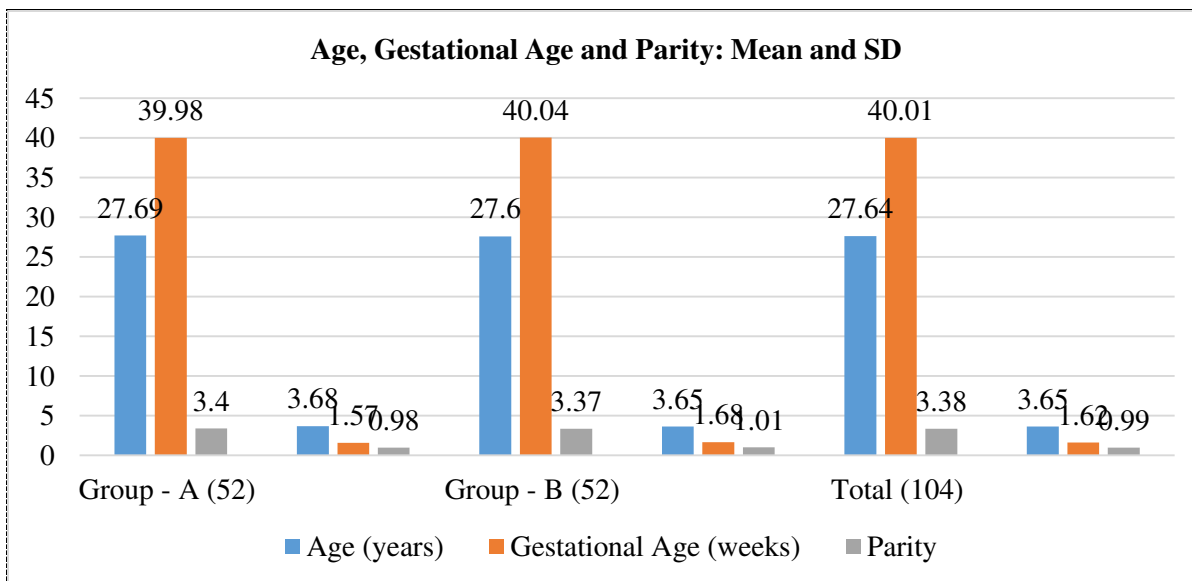


Table – III: Group Wise Success: Number and Percentage

Success	Group - A (52)		Group - B (52)	
	Number	Percentage	Number	Percentage
Yes	35	67.31	46	88.46
No	17	32.69	6	11.54

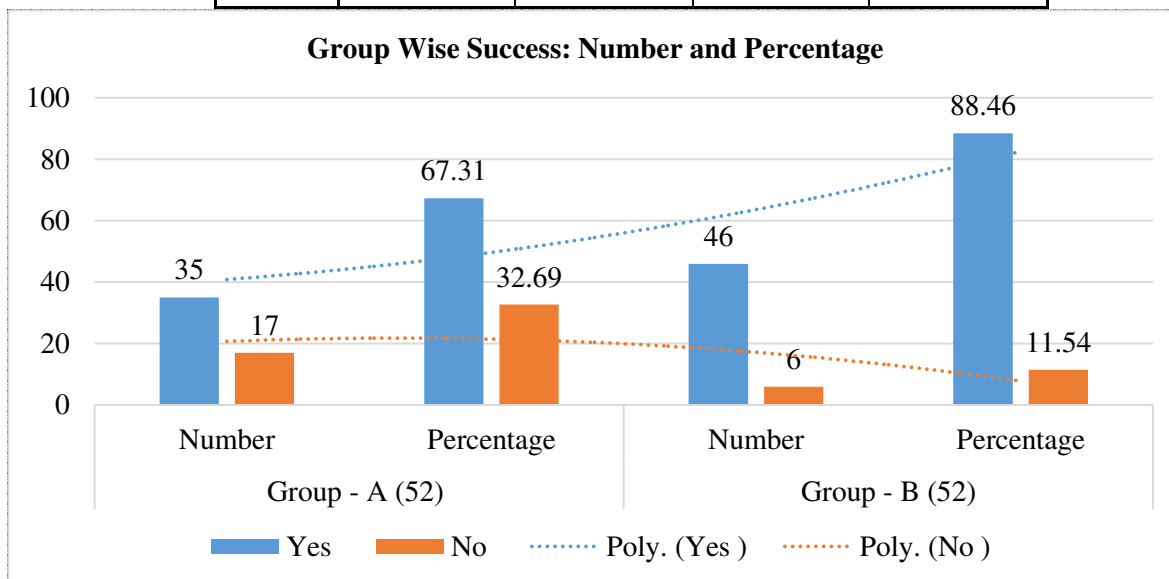
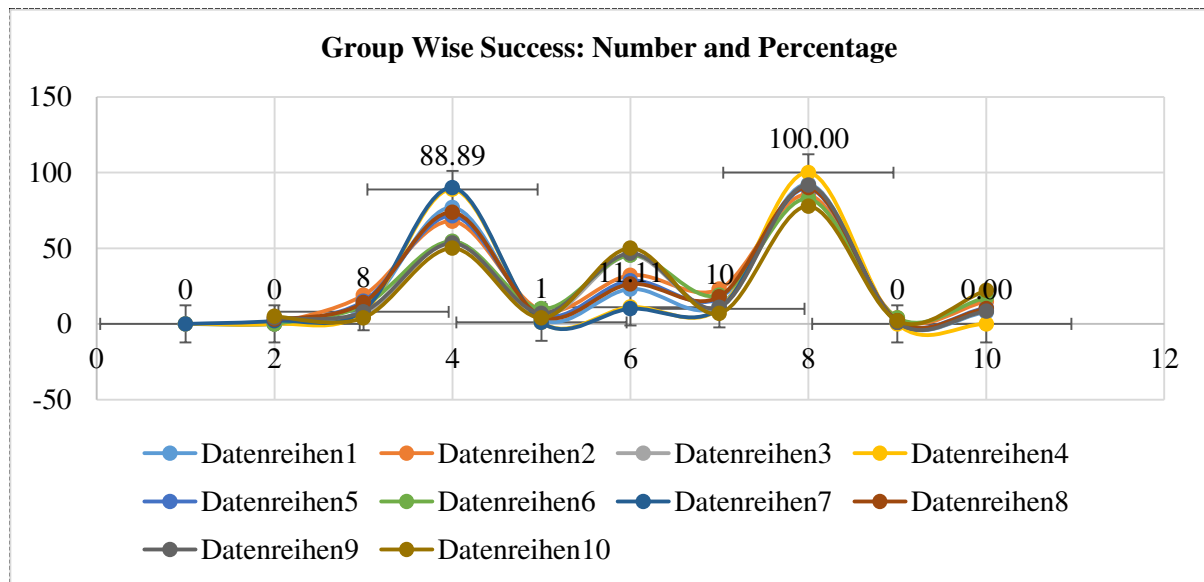


Table – IV: Group Wise Success: Yes Versus No

Success		Group - A (52)				Group - B (52)				p-value
		Yes		No		Yes		No		
		No	%	No	%	No	%	No	%	
Age of patients (years)	20 - 25	10	76.92	3	23.08	12	92.31	1	7.69	0.277
	26 - 30	19	67.86	9	32.14	23	85.19	4	14.81	0.13
	31 - 35	6	54.55	5	45.45	11	91.67	1	8.33	0.043
Gestational age (weeks)	36 - 38	8	88.89	1	11.11	10	100.00	0	0.00	0.279
	> 38 - 40	15	71.43	6	28.57	17	89.47	2	10.53	0.154
	> 40 - 42	12	54.55	10	45.45	19	82.61	4	17.39	0.042
Parity	2	9	90.00	1	10.00	10	90.91	1	9.09	0.943
	3	14	73.68	5	26.32	18	90.00	2	10.00	0.184
	4	8	53.33	7	46.67	11	91.67	1	8.33	0.03
	5	4	50.00	4	50.00	7	77.78	2	22.22	0.232



DISCUSSION:

The study purpose was to compare the success rate (in terms of the avoidance of hysterectomy and of stoppage of bleeding) of IBT with BLS in the management of SPPH. The subjects in our study had (27.6 ± 03.6) years mean age. Women in IBT and BLS group had the mean age of (27.69 ± 3.68) and (27.6 ± 03.6) years. Among 104 patients, 56.3% (55) were having an age of 26 – 30 years. The outcomes of the study of Yaqub U et al and Khamaiseh K et al show similarity with our study who recorded 27 and 28 years as mean age respectively with 26 – 30 years old patients in the majority [11, 12]. The study of Nizam K et al and Ferrazzani S et al show contrary results with a mean age of 35 and 36 respectively

having most of the patients' age less than 31 years [7, 13]. Gestational age as mean was (40 ± 1.62) week. Patients (45) with gestation age above 40 – 42 weeks were found in the majority (43.2%). This shows a direct relation between gestational age and the risk of SPPH. The study of Tirumuru S et al and Yaqoob U et al coincide with our results [11, 14]. Our study found success rate (Stoppage of bleeding within 15 minutes) among patients of IBT group and BLS group to be 67.3% (35) and 88.46% (46) respectively with p-value 0.009 as statistically significant. The study of Baskett TF et al found 82% success rate among twenty-eight patients of PPH by controlling the bleeding [15]. Wohlmutth CT et al reported 77% success rate in another study [16]. In a study, Diemert

A et al found 60% and 90% success rate using only a balloon and balloon with BLS respectively [17]. Victoria YKC et al found a success rate of 66% using only BLS compression and 74% with using other surgical procedures in conjunction [18]. Since B-Lynch published his first paper in 1997, the success rate of compression sutures was recorded very high in many studies, from 90% - 100%, but very low comparing to this study [19, 20]. In the study of Palacios-Jaraquemada JM et al, 94% success rate was found using the various surgical method in managing PPH using BLS [21]. On the other hand, 100%, 100% and 92% success rates were found using Pereira sutures, Cho sutures, and Hayman sutures respectively. A case series done in Pakistan by Neelam N et al. found BLS success rate to be 83% while managing PPH [22].

CONCLUSION:

The study concludes that BLS is a better procedure with 88.46% as compared to IBT with 67.3% success rate for the management of SPPH. So, B-Lynch suture (BLS) is recommended as a primary technique in dealing with SPPH to avoid maternal mortality and morbidity. Moreover, this method helps in avoiding a hysterectomy for managing SPPH and it should be used as a primary technique by fertility preserving method.

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