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ORIGINAL ARTICLE

Effect of Clinical Interventions on the Incidence of Primary Post-Partum Hemorrhage in Females Undergoing Spontaneous Vaginal Delivery

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ABSTRACT

Background: Primary Post-Partum Hemorrhage (PPH) is blood loss 500ml or more commonly occurring during the 3rd and 4th stage of labour, the period is known as delivery of infant with placenta and two hours after delivery. Labor room and delivery room nurses continuously miscalculate blood loss after delivery, which could lead to delay in providing care during Primary Post-Partum Hemorrhage.

Objective: To see effect of Clinical Interventions on the Incidence of Primary Post-Partum Hemorrhage in females undergoing spontaneous vaginal delivery (SVD).

Methods: Quasi-Experimental study design was used with Pre & Posttest. Incidence of Primary Post-Partum Hemorrhage 196 patients sample was used in this study. Purposive sampling Technique was used in this research. Study setting was all admitted patients in gynae ward of Allied Hospital Faisalabad. The study duration was conducted in September 2021 to May 2022. Maternal age in years 20-50years were including in this study.Femlaes having previous lower segment Caesarean section (LSCS)were excluded from the study. Validated adopted checklist was used to measure incidence rate of Primary Post-Partum Hemorrhage with Cronbach Alpha (0.89). Primary Post-Partum Hemorrhage were labeled as group of "Yes" for right answer & the score was 1 and "No" for wrong answer and score was labeled as "0".

Results: Frequency & Percentages of Demographic variables were checked. During pre-intervention period 39% Incidence rate in females & on the other hand after interventions incidence rate decreases 14% after Spontaneous Vaginal Delivery. This is statistically acceptable. Paired sample t-test was conducted to evaluate the impact of the interventions on females Blood Pressure systolic Pre interventions scores Mean± SD(109.847±12.4303) & Post intervention scores (114.0306±11.30396) with Mean Difference was -4.18367, Paired t test -3.403with P value 0.001.Blood Pressure Diastolic Pre interventions scores Mean± SD(73.2143±8.96575) & Post intervention scores (76.9898±7.06163) with Mean Difference was -3.77551, Paired t test -4.560 with P value 0.000.Pulse Rate in Pre interventions scores Mean± SD(86.3163±6.21346) & Post intervention scores (85.2143±4.63819) with Mean Difference was 1.10204, Paired t test 1.891 with P value 0.060.Temperature in Pre interventions scores Mean± SD(98.1827±.44457) & Post intervention scores (98.1541±.45891) with Mean Difference was .02857, Paired t test .595 with P value 0.553.Respiration in Pre interventions scores Mean± SD(17.3367±1.51196) & Post intervention scores (17.0561±5.98047) with Mean Difference was .28061, Paired t test .625 with P value 0.533.Paired sample t-test was conducted to evaluate the impact of the interventions on females Incidence Rate Pre interventions scores Mean± SD (1.8010 ± .40026) & Post intervention scores (1.9286 ± .25820) with Mean Difference was -1.2755, Paired t test -3.767 with P value 0.00.

Conclusion: Clinical Interventions was effective on the Incidence of Primary Post-Partum Hemorrhage in females undergoing spontaneous vaginal delivery.

Key Words: Post-Partum hemorrhage**,** lower segment Caesarean section, Incidence, Females, spontaneous vaginal delivery, Miscalculate.

INTRODUCTION

Definition of Primary Post-Partum Hemorrhage is blood loss 500ml or more commonly occurring during the 3rd and 4th stage of labour, the period is known as delivery of infant with placenta and two hours after delivery. Major cause of 40% maternal deaths is Primary Post-Partum Hemorrhage (PPH) in low income developing countries.(Orovac et al., 2021)

Primary Post-Partum Hemorrhage can be classified as retained placenta, laceration of genital tract and uterine atony. Primary Post-Partum Hemorrhage contributing two factors contains to avoid uterine atony due to less fundal massage & soon after delivery late administration of pitocin which can causes Primary Post-Partum Hemorrhage. Nurse's face many issues during their job due to patient's ratio was high as well as nurses ratio was low. (Wormer et al., 2021)

Major cause of Post-Partum Hemorrhage is uterine atony and knowledge of the etiology of Post-Partum Hemorrhage is essential in my evidence-based research. The Research findings recommend that the study collects data from a large perinatal data registry that may have transcriptional and coding errors. Another limitation relates to the diagnosis of Post-Partum Hemorrhage, since the estimate of blood loss at birth was not standardized over the study period. Study has inherent methodological limitations. (Rani & Begum, 2017)

Post-partum Hemorrhage is an emergency which is happen after cesarean or vaginal delivery. Through Prevention Suitable diagnosis, provision of critical resources, equipment & proper management of the third & fourth stage of labor can be achieved. Post-Partum Hemorrhage can be divided into two categories: Early Post-Partum Hemorrhage & Secondary Post-Partum Hemorrhage. Primary Post-Partum Hemorrhage (early PPH) is known as Bleeding occurs within first 24 hours after delivery, and Bleeding occurs 24 hours to 12 weeks after delivery which is known as secondary or delayed Post-Partum Hemorrhage. (Evensen et al., 2017, pp.442-449)

In addition, pitocin is recommended to avoid Post-Partum Hemorrhage during vaginal delivery, which is suspected of having a low risk of bleeding. The decline in the incidence of PPH was found to be associated with active management of the third stage of labor (AMTSL) practices. Research team evaluated quality of evidence against the usage criteria (ie, acceptable criteria) identified through Canadian Task Force on Preventive measures. (de Castro Parreira & Gomes, 2013,pp.3372-3387)

METHODOLGY

This quantitative approach with a pre-experimental, one-group pre-test & post-test design included (n-196) admitted patients. Study subjects were selected from the Gynae department of a tertiary care hospital in Faisalabad Pakistan. Ethical and research committee approval (IRB-UOL-FAHS/932//2021) was taken from the University of Lahore, Lahore Pakistan. Signed consent was taken from all participants and information taken from them is kept

confidential. Admitted females for Spontaneous Vaginal Delivery was the participants of study. We excluded the Primary Gravida patients who had admitted for Lower segment Caesarean section **(**LSCS) in the Hospital.

The study was conducted from September to March 2021. In pre-assessment & Post Assessment 7 items checklist was used on data regarding signs of Primary Post -Partum Hemorrhage. First part based on Demographic variables (Age, Gravida, Education, Occupation, Medical History) & second part contains Blood Pressure(Systolic, Diastolic),Pulse,Temperature,Respiration ,Amount of blood loss was categorized as Mild if score is 500ml , Moderate if score is 500ml-700ml, Severe if score is 700ml-1000ml & Occurrence of PPH if score is >1000ml.Last part of checklist contains Incidence occur or Not. clinical assessor assessed the Participants for blood loss at their original working place by maintaining anonymity. Post-Partum Hemorrhage were marked under the category of "Yes" and the score was 1 and wrong or missed one step as "0" under the column of "No".(Aboushady, Reda & Mohamed, Tawheda & Eid, Rania. (2018))

16 weeks of educational training regarding Primary Post-Partum Hemorrhage was given. Two hours per session during 16 weeks training program, two sessions were given per week Tuesday & Thursday. This training program was validated and given by the expert doctors of the relevant field. In training, session participants were taught for skill competence by the simulation, videos, Notes and live performance on patients. Four weeks were given for improving skill competence. Then participants were reassessed for practices changes. Checklist on Sign of Primary post- partum Hemorrhage was used to observe incidence rate before and after interventions. Data were collect four days in a week.

The internal consistency of the signs for Primary Post-Partum Hemorrhage Checklist was measured through Cronbach alpha for practice (0.89). SPSS version 20 was used for statistical analysis. Frequency and percentage were checked for demographic Variables. Data about Primary Post-Partum incidence was obtained twice, before and after the educational training session from one group. The collected data was in form of whole numbers to check the pre-and post-mean difference by applying paired t-test. Pre was coded as 1 and post as 2. The level of significance was set as ≤ 0.05.

RESULTS

Table#1 shows total 196 participants were chosen from Allied Hospital Faisalabad. The age of the 8(4.1%) patients is 20 years. The age of the 18(9.2%) patients is 22 years. The age of the 9(4.6%) patients is 23years. The age of the 22(11.2%) patients is 24years. The age of the 15(7.7%) patients is 25years. The age of the 21(10.7%) patients is 26years. The age of the 6(3.1%) patients is 27years. The age of the 18(9.2%) patients is 28years. The age of the 6(3.1%) patients is 29years. The age of the 12(6.1%) patients is 30years. The age of the 2(1.0%) patients is 31years. The age of the 14(7.1%) patients is 32years. The age of the 4(2.0%) patients is 33years. The age of the 11(5.6%) patients is 34years. The age of the 5(2.6%) patients is 35years. The age of the 12(6.1%) patients is 36years. The age of the 2(1.0%) patients is 37years. The age of the 11(5.6%) patients is 38years.

Table # 1: Demographic Characteristics of Participants (Admitted Females n=196) Age of Participants

Age (Years)	F	%	Age (Years)	F	%
20Years	8	4.1	30Years	12	6.1
22Years	18	9.2	31 Years	2	1.0
23Years	9	4.6	32 Years	14	7.1
24Years	22	11.2	33 Years	4	2.0
25Years	15	7.7	34 Years	11	5.6
26Years	21	10.7	35 Years	5	2.6
27Years	6	3.1	36 Years	12	6.1
28Years	18	9.2	37 Years	2	1.0
29Years	6	3.1	38 Years	11	5.6

Table # 2: Gravida Status of Research Participant

Gravida	F	%
Primary Gravida	56	28.6
Multi Gravida	140	71.4
Total	196	100

Table # 2 shows the Gravida of the research participants 56(28.6%) were primary Gravida, 140(71.4%) research participants were multi Gravida.

Table # 3: Occupation Status of Research Participant

Occupation Status	F	%
Working Women	27	13.8
House Wife	169	86.2
Total	196	100

Table # 3 shows the occupation of the research participants 27(13.8%) were working women, 169(86.2%) research participants were House wife's.

Table # 4: Education Status of Research Participant

Education Status	F	%
Primary	14	7.1
Matric	35	17.9
Intermediate	36	18.4
Uneducated	63	32.1
Others	48	24.5
Total	196	100

Table # 4 shows Education of 14(7.1%) research participants was primary, 35(17.9%) participants were Matric, Education of 36(18.4%) participants was Intermediate, Education of 63(32.1%) participants was uneducated & Education of 48(24.5%) participants was others.

Table # 5: Medical History Status of Research Participant

Medical History Status	F	%
No Illness	128	65.3
Hypertensive	11	5.6
Anemia	37	18.9
Diabetes	7	3.6
Heart Disease	2	1.0
Blood Clotting Disorder	5	2.6
Others	6	3.1
Total	196	100

Table # 5 shows the Medical History of the research participants 128(65.3%) were having no illness, 11(5.6%) research participants were Hypertensive, 37(18.9%) research participants were diagnosed with Anemia, 7(3.6%) research participants were diagnosed with Diabetes, 2(1.0%) research participants were diagnosed with Heart Disease, 5(2.6%) research participants were diagnosed with Blood Clotting Disorder & 6(3.1%) research participants were diagnosed with others.

Table-5 shows the frequency and percentage of Categories on signs about Primary Post-Partum Hemorrhage in pre & Post Intervention. Table-6 shows the frequency and percentage of incidence occurrence primary PPH in females before and after educational intervention. Table-7 shows Paired t test between vital signs before and after interventions.Table-8 shows the comparison of Pre & Post Incidence of Primary Post-Partum Hemorrhage before and after training session Mean and SD of incidence of Primary PPH was in pre intervention scores Mean± SD (1.8010 ± .40026) & Post intervention scores (1.9286 ± .25820) with Mean Difference was -1.2755, Paired t test -3.767 with P value 0.00.

Table # 6: Categories on signs about Primary Post-Partum Hemorrhage in pre & Post Intervention

Signs	Pre Intervention		Post Intervention	
Amount of Blood loss:	F	%	F	%
Mild blood loss<500ml:	156	79.6	108	55.1
Moderate blood loss500ml-700ml	25	12.8	69	35.2
Severe blood loss700ml-1000ml:	15	7.7	-	-
Occurrence of PPH>1000ml	-	-	19	9.7
Total	196	196	100	100

As shown in table 6 that 156(79.6%) research participants have mild blood loss during delivery in pre-interventions, 25(12.8%) have moderate blood loss during delivery and 15(7.7%)

have severe blood loss during delivery. While 108(55.1%) research participants have mild blood loss during delivery in post-interventions, 69(35.2%) have moderate blood loss during delivery and 19(9.7%) have Occurrence of PPH during delivery.

As shown in table 7 that 19.9% pre score of Incidence Occur of Primary Post-Partum Hemorrhage and 80.1% not occur .While in post score 7.1% Incidence Occur of Primary Post-Partum Hemorrhage and 92.9% not occur.

Table # 7: Incidence rate of Primary Post-Partum Hemorrhage pre & post Interventions (n=196)

N	Pre Intervention		Post Intervention	
	F	%	F	%
Incidence occur	39	19.9	14	7.1%
Not Occur	157	80.1	182	92.9
Total	196	100	196	100

Table # 8: Paired t test between vital signs before and after interventions (n=196)

	Pre Intervention	Post intervention			
	Mean± SD	Mean± SD	Mean Difference	Paired t test	P value
Blood Pressure Systolic	109.847±12.4303	114.0306±11.30396	-4.18367	-3.403	.001
Blood Pressure Diastolic	73.2143±8.96575	76.9898±7.06163	-3.77551	-4.560	.000
Pulse	86.3163±6.21346	85.2143±4.63819	1.10204	1.891	.060
Temperature	98.1827±.44457	98.1541±.45891	.02857	.595	.553
Respiration	17.3367±1.51196	17.0561±5.98047	.28061	.625	.533
Amount of blood loss	1.2806±.59729	1.5204±68282	-.23980	-3.664	.000

As shown in table 8 shows that paired sample t-test was conducted to evaluate the impact of the interventions on females Blood Pressure systolic Pre interventions scores Mean± SD(109.847±12.4303) & Post intervention scores (114.0306±11.30396) with Mean Difference was -4.18367, Paired t test -3.403with P value 0.001.Blood Pressure Diastolic Pre interventions scores Mean± SD(73.2143±8.96575) & Post intervention scores (76.9898±7.06163) with Mean Difference was -3.77551, Paired t test -4.560 with P value 0.000.Pulse Rate in Pre interventions scores Mean± SD(86.3163±6.21346) & Post intervention scores (85.2143±4.63819) with Mean Difference was 1.10204, Paired t test 1.891 with P value 0.060.Temperature in Pre interventions scores Mean± SD(98.1827±.44457) & Post intervention scores (98.1541±.45891) with Mean Difference was .02857, Paired t test .595 with P value 0.553.Respiration in Pre interventions scores Mean± SD(17.3367±1.51196) & Post intervention scores (17.0561±5.98047) with Mean Difference was .28061, Paired t test .625 with P value 0.533.Amount of blood loss in in Pre interventions scores Mean± SD(1.2806±.59729) & Post intervention scores **(**1.5204±68282) with Mean Difference was -.23980 **,** Paired t test -3.664 with P value .000.

Table # 9: Compare of Pre & Post Incidence of Primary Post-Partum Hemorrhage (n=196)

	Mean± SD	Mean Difference	Paired t test	P value
Pre intervention scores	1.8010 ± .40026	-1.2755	-3.767	0.00
Post intervention scores	1.9286 ± .25820			

As shown in table 9 shows that paired sample t-test was conducted to evaluate the impact of the interventions on females Incidence Rate Pre interventions scores Mean± SD(1.8010 ± .40026) & Post intervention scores (1.9286 ± .25820) with Mean Difference was -1.2755, Paired t test -3.767 with P value 0.00.

DISCUSSION

Loss of blood estimated to be >500ml, from the genital tract within 24 hours of delivery is known as Primary Post-Partum Hemorrhage. Results of present study shows incidence rate could be decreased through clinical interventions and proper monitoring of vital signs during delivery and minimize the risk factor before and after delivery. Current study shows contrary results to previous study. Results shows incidence rate of Post score 7.1% Incidence Occur of Primary Post-Partum Hemorrhage and 92.9% not occur. (Wormer et al., 2021)

According to this study pre-and post-intervention was done. For Post-Partum hemorrhage a web based training program was done. Forty midwifery students were involve in this interventional study on Post-Partum hemorrhage. Significant improvement in nurse's knowledge and self -confidence showed in statistical analysis related to the management and prevention of Post-partum Hemorrhage. (Dawood et al., 2021, p.2)

Gynae department nurses' knowledge improved significantly as a result of teaching programs (both simulation and didactic) for the prevention and management of Post-Partum Hemorrhage. The previous studies show that training interventions on Post-Partum Hemorrhage prevention and management have the 52 potential to significantly increase nurses' knowledge and capacity actively. Also reduce the incidence rate of Post-Partum Hemorrhage. (Nelissen et al., 2017, pp.1-9)

Post-Partum hemorrhage is the maximum not unusual place difficulty of delivery & maximum preventable purpose of maternal mortality. Results confirmed that, females who obtained the uterine rubbing down and lively control at some stage in 1/3 level of exertions related to higher maternal consequences in comparison to government Hospitals. (McLintock, 2020, pp.542-546)

CONCLUSION

According to the results it is conclude that clinical interventions on Incidence of Primary Post-Partum Hemorrhage in females showed significant improvement during statistical analysi.Maternal Mortality rate was high across all over the word. A female who received proper care during third & Fourth stage of labor were having fewer chances of Primary Post-Partum Hemorrhage occurrence. On the other hand that female also had better maternal health during purperium period.

Recommendations: For continuing education in future recommendation should be made compulsory for nurses working in Gynae Department. Refresher programs must arrange annual bases for nurses working in Gynae Department. Here is need to arrange meetings by Hospital Administrations for nurses to discuss different issues which is faced by them during their working hours.

Contribution of Authors:
IK: Envision of idea, design, data collection & article writing
AY: On the whole supervision of the study
KP: Assistance in designing & analytical input to article
SK: Data analysis, complete evaluation & redrafting of article
MA: Final layout & made significant input
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