

# Instillation of Normal Saline Intraumbilically for the Management of third stage of labour

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**Summary:** The postpartum haemorrhage is the most serious and dramatic complication in obstetrics. This is usually managed by parenteral oxytocics but inherent side effects limit their use in high risk pregnancies. In this study effectiveness of intraumbilical saline in different volumes to decrease the duration and blood loss during third stage of labour were studied. The mean duration of third stage of labour in study groups A, B & C were 2'.26", 1'.40" & 1.30" respectively, while in control group it was 4'.10". The mean blood loss in study group A, B & C were 179.4ml, 145.5ml & 140ml respectively, while it was 290ml in control group. The differences in results of control and study group were statistically significant ( $p < 0.05$ ). The larger volumes of saline perhaps reaches the placental bed more effectively, dissects it from uterine wall by its hydrostatic effect and expedites its expulsion. Thus instillation of adequate volumes of normal saline into umbilical vein is effective in decreasing the duration and blood loss during third stage of labour

## Introduction

The postpartum haemorrhage is the most common complication of third stage of labour and is defined as blood loss in excess of 500 ml after the birth of the baby. Out of all the stages of labour, the third stage is most crucial for the mother and it is time period between delivery of the baby and delivery of the placenta. Prolongation of this stage only transforms a normal delivery into a catastrophe. In developing countries, most of the women are anaemic with poor reserve and condition is further aggravated by increased demand during pregnancy and blood loss during the third stage of labour.

Most of the views of postpartum haemorrhage are based on studies carried out 20-30 years ago. The traditional conservative attitude towards the management of third stage of labour is norm in most of the labour rooms. But the days of watchful expectancy with masterly inactivity seems to be over in view of serious consequences of post partum haemorrhage and active management of this stage has become the rule in recent times.

This study has made an attempt to evaluate the effectiveness of different volumes of normal saline injection into the umbilical vein, immediately after clamping & cutting the umbilical cord so as to know the role of hydrostatic pressure in placental separation and

its efficacy in decreasing the blood loss and duration of third stage of labour and the complication if any of this procedure.

## Material & Method

This study was conducted in the department of Obst. & Gynae, PGIMS, Rohtak. The study included 100 pregnant women at term and in labour. These women were then divided into 4 groups of 25 each.

- Group-A - consisted of 25 pregnant women receiving 25 ml of normal saline injected into umbilical vein immediately after clamping & cutting the cord.
- Group-B - consisted of 25 pregnant women receiving 50 ml of normal saline injected into umbilical vein immediately after clamping and cutting cord.
- Group-C - comprised of 25 pregnant women receiving 75 ml of normal saline injected into umbilical vein immediately after clamping & cutting the cord.
- Control Group - comprised of 25 pregnant women in whom no active intervention was done in third stage of labour and placenta was allowed to separate and deliver spontaneously

On admission detailed obstetric history was taken followed by detailed physical and obstetrical examination along with the written informed consent from each patient. The criteria for exclusion were (1) Previous uterine scar; (2) Multiple pregnancy; (3) Abruptio placentae; (4) Grand multipara; (5) Chorio amnionitis (6) Low lying placenta.

Immediately after delivery of baby the cord was clamped and cut, preloaded normal saline was injected into umbilical vein according to the group under study. Time interval between delivery of baby and placental delivery was noted. The amount of blood loss was measured in a kidney tray containing oxalate and then it was transferred into a graduated container. The pads, swabs to be used were weighed before & after use. Blood loss was calculated as 1 gm = 1 ml (Harding, 1984).

## Results & Observations

**Age Distribution:-** As seen from Table I, in both the control and study groups, majority of the cases were between 18 to 27 years of age, whereas only 4% and 8% cases were above 32 years in control and study groups respectively.

Table-1  
Age Distribution Control

Age in yrs.	No. (%)	Group A (%)	Group B (%)	Group C (%)
18-22	8 (32%)	9 (36%)	9 (36%)	7 (28%)
23-27	14 (56%)	12 (48%)	12 (48%)	11 (44%)
28-32	2 (8%)	4 (16%)	4 (16%)	5 (20%)
> 32	1 (4%)	NIL	NIL	2 (8%)
	25 (100%)	25 (100%)	25 (100%)	25 (100%)

**Parity Distribution:-** In control group 52% cases were primigravida and in study group A, B, C, there were 52%, 48%, 50% primigravidae respectively and rest were multigravidae.

**Duration of Third stage of Labour :-** In control group 64% patients delivered Placenta by 5 minutes and in the rest it was expelled out by six minutes. (Table-II).

In study group A – 24% of cases expelled the placenta

Table-II

Duration of Third stage in Control Group		
Duration (Minutes – Seconds)	Total No. of cases = 25	
	No.	Percentage
4'.00"- 4.30"	7	28%
4.31"- 5'.00"	9	36%
5'.01"-5.30"	6	24%
5'.31"-6'.00"	3	12%

within 2 minutes, in 32% of patients placenta was expelled out in 2 and ½ minutes and in the rest (44%) it was expelled out in 3 minutes. (Table-III).

In study group B-96% of cases the placenta was expelled out in less than 2 minutes. In study group C – in all patients placenta was expelled out in 2 minutes. (Table-III).

Table-III

Duration of Third Stage in Study Groups			
Duration (Minutes-Seconds)	Group A	Group B	Group C
	No. (%)	No. (%)	No. (%)
1'.00"-1".30"	0	7 (28%)	11 (44%)
1.31"-2'.00"	6 (24%)	17 (68%)	14 (56%)
2.01"-2".30"	8 (32%)	1 (4%)	0
2.31"-3".00"	11 (44%)	0	0

Blood loss in Control Group: - In 92% of patients, it varied from 200-400 ml and only in one patient it was more than 500 ml. (Table-IV).

Table-IV  
Blood Loss in Control Group

Blood Loss (ml)	Total No. of cases =25	
	No.	Percentage
200-300	17	68%
301-400	6	24%
401-500	1	4%
> 500	1	4%

In study group the blood loss is shown in Table-V.

Pre delivery and post delivery mean haematocrit in control and study group is shown in Table-VI.

Mean third stage duration & blood loss in study and

control groups is illustrated in Table-VII.

Table -V  
Blood loss in Study Group

Blood loss	Group -A	Group -B	Group -C
	No. (%)	No. (%)	No. (%)
100 -200	18 (72%)	23 (92%)	24 (96%)
201 -300	7(28%)	2(8%)	1(4%)

Table -VI  
Mean Haematocrit

	Control Group	Study Group		
		A	B	C
Predelivery (%)	31.04	30.88	30.96	30.80
Post delivery (%)	27.60	28.92	29.22	29.20
Mean Difference (%)	3.44	1.96	1.74	1.60
S.D.	+ 1.2	+ 0.8	+0.7	+0.5
P value		<.001	<.001	<.001

Table -VII  
Mean duration and Blood loss in Third Stage of Labour

Mean duration	Control	Study		
		A	B	C
(Minutes-Seconds)	4' 10"	2'26"	1'40"	1'30"
S.D.	+ 0.50	+ 0.30	+ 0.30	+0.20
Mean Blood loss				
(ml)	290	179.4	145.5	140
S.D.	+ 95.5	+ 30.7	+ 34.3	+ 35.2

## Discussion

Neri et al in 1966 first described the use of intraumbilical oxytocin for shortening third stage of labour, (Neri, 1987). Subsequently in 1983, Golan et al found intraumbilical oxytocin very effective in management of retained placenta. Later on Golan himself used oxytocin in 20 ml

of saline by intraumbilical route. He postulated that saline solution itself has the mechanical effect, i.e. dissecting in the placental bed between the placenta and the uterine wall to enhance its separation even without muscular contraction (Golan, etal 1983).

It was observed that parental oxytocics have significant role in the active management of third stage of labour but inherent side effects hinder their use in high risk pregnancies. Additionally their sensitivity to high ambient temperature and need of skilled personnel for its administration, limits their use. The present study obviates these problems and makes obstetrician self reliant for proper and safe management of third stage of labour in busy labour room.

In conclusion, instillation of adequate volumes of normal saline into umbilical vein, is effective in decreasing the duration and blood loss in third stage. Larger volume of saline, perhaps reaches the placental bed, dissects it from the uterine wall by its hydrostatic effect and expedites its expulsion. 50 ml normal saline injection seems most appropriate and effective for intraumbilical administration. So, this study has brought out a cheap, effective, safe and non invasive method in reducing duration of third stage and amount of blood loss and thus contributing in reduction of maternal morbidity and mortality due to complications of the third stage of labour.

## References

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