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# ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR BY OXYTOCIN SALINE INSTILLATION INTO THE UMBILICAL VEIN

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ABSTRACT

***Aim :*** To study the efficacy of Oxytocin instillation into the umbilical vein for active management of third stage of Labour, i.e., in the prevention of Post Partum haemorrhage and also its effect on third stage duration and amount of blood loss and to compare the efficacy of oxytocin by this method to prophylactic methergin.

## INTRODUCTION

Third stage of labour is a time of Anxiety. "Its antepartum haemorrhage which weakens and post partum haemorrhage that kills", is a true aphorism. Following the expulsion of placenta begins what has been rightly called the most dangerous 5 minutes of Pregnancy.

Although maternal mortality has decreased considerably over the years, postpartum haemorrhage is still a leading cause of maternal death. Approximately 8% of all pregnancies are complicated by post partum haemorrhage. Postpartum haemorrhage is defined as an estimated blood loss of more than 500ml. in the first 24 hours after delivery. Though 500ml is taken, as the cut of point, many women may not tolerate this loss. Postpartum haemorrhage may lead to increase maternal morbidity and mortality.

Morbidity may be increased due to the presence of infection, anaemia and Thrombosis. Massive blood loss will lead to Hypovolemic shock with its late sequale like failure to establish lactation and sheehan's syndorme.

The aim of every obstetrician should be to limit the postpartum blood loss to 100 ml in a Normal Labour (Calkins 1935). A prolonged 3rd stage of labour is often associated with increased risk of maternal mortality due to P.P.H and hence sometimes necessitating manual removal of placenta. Today the policy of watchful expectancy and masterly inactivity is unacceptable.

Various techniques have been described for shortening of third stage of labour. The use of intraumbilical oxytocin for shortening of third stage of labour was first described by NERI et al as early as in 1966. Subsequently the concept of intraumbilical injection of Oxytocin was devised by GOLAN et al (1983) who contended that the procedure facilitates the delivery of higher concentrations of oxytocin to placental bed and uterine wall resulting in uterine contraction and placental separation. However, Kriestensen et al (1986) did not find any advantage of this method and contradictory results were obtained by different authors.

This study attempts to evaluate the effect of oxytocin instillation through umbilical vein in reducing the blood loss and duration of the third stage of labour.

## MATERIAL AND METHODS

Two hundred cases of spontaneous Vaginal deliveries conducted in the Department of Obstetrics & Gynaecology at Government General Hospital, Kurnool were recruited for the study.

The cases were divided into two groups :
Group I: Methyl Ergometrine Maleate (100 cases) 0.2mg of Methyl Ergometrine was given intramuscularly soon after the delivery of the baby.

Group II 5 Units of Oxytocin diluted in 10ml of Normal Saline was instilled into the umbilical vein soon after clamping the cord.

## CASE SELECTION :

Gravidas upto gravida IV who had a singleton pregnancy with no associated complications and who had an unaided spontaneous vaginal delivery.

## EXCLUSION CRITERIA :

The following groups of patients were excluded from the study.

1. Patients with uterine over distension due to a twin pregnancy or hydramnios.
2. Those who required induction or augmentation of labour with syntocinon.
3. Patients with medical disorders like Anaemia, Hypertension, diabetes etc.
4. Pregnancies complicated by congenital anomalies of the uterus like septate, bicornuate were also excluded from the study.

## TREATMENT PLAN :

All cases were admitted in the labour room at the onset of true labour pains. Vital data, temperature, pulse and Blood Pressure were recorded. Heart and Lungs examined, per abdomen and per vaginal examination done. Patient is followed up throughout first stage of labour. First stage duration noted down.

Delivery of the baby conducted and duration of the second stage noted down in all patients.

Group I (In Methylergometrine group) after the baby was born the cord was clamped closed to the introitus and one amp. Methergin I.M was given.

Group II (In Oxytocin group) after the baby was born the cord was clamped at 5 cms. distance from introitus. The prepared solution of Oxytocin is instilled into the umbilical vein and cord is reclamped above the injection site to prevent leakage of the solution. Placenta was then removed in all cases by controlled cord traction. Expulsion of the placenta was taken as the end point for the third stage.

After the second stage a sterile kidney tray was kept against the perineum, the blood loss both before and after expulsion of the placenta was collected. The collected blood was immediately measured in a graduated cylinder. Every effort was made to avoid contamination of the blood with liquor amnii. All patients were observed for one hour after delivery, the blood loss during this period was measured at every 30 minutes.

The neonate was weighed. The placenta was examined for any gross abnormality, the placenta was weighed.

## RESULTS

### GROUP - I

**Table-1: Average Blood Loss**

| Blood loss in ml. | 0-50 | 51-100 | 101-150 | 151-200 | 201 & above |
|---|---|---|---|---|---|
| Immediately after delivery | | | | | |
| No. of patients | 21 | 57 | 14 | 6 | 2 |
| Percentage | 21 | 57 | 14 | 6 | 2 |
| Blood loss 1 hour after delivery | | | | | |
| No. of patients | 3 | 70 | 14 | 8 | 5 |
| Percentage | 3 | 70 | 14 | 8 | 5 |

Average blood loss immediately after delivery was 83.20 ml. Average blood loss one hour after delivery was 99.52 ml immediately after delivery the least amount of blood loss was 32 ml and maximum blood loss was 626 ml upto 1 hour the minimum loss was 44 ml and maximum loss was 650 ml.

**Table-2: Duration of Third Stage**

| Duration of 3rd stage in Mts. | 1-4 | 4-7 | 7-10 | 11 & above |
|---|---|---|---|---|
| No. of patients | 9 | 88 | - | 3 |
| Percentage | 9 | 88 | - | 3 |

Average Duration : 5 min. 37 sec. 97% of patients had a third stage duration of under 7 minutes. 3% of patients had a prolonged third stage duration due to retained placenta.

**Table-3: Relation of Duration of third stage to Blood Loss**

| Duration of 3rd stage in min. | 1-4 | 4-7 | 7-10 | 10 |
|---|---|---|---|---|
| Blood loss in ml. | 54.91 | 77.25 | - | 342.6 |
| No. of patients | 9 | 88 | - | 3 |
| Percentage | - 9 | 88 | - | 3 |

The amount of blood loss gradually increasing with duration of third stage.

**GROUP- II**

**Table – 1 : Average Blood Loss**

| Blood loss in ml. | 0-50 | 51-100 | 101-150 | 151-200 | 201 & above |
|---|---|---|---|---|---|
| Immediately after delivery | | | | | |
| No. of patients | 50 | 36 | 10 | 2 | 2 |
| Percentage | 50 | 36 | 10 | 2 | 2 |
| Blood loss 1 hour after delivery | | | | | |
| No. of patients | 21 | 53 | 18 | 4 | 4 |
| Percentage | 21 | 53 | 18 | 4 | 4 |

Average blood loss immediately after delivery was 62.38 ml. Average blood loss upto one hour after delivery was 84.02 ml.

The minimum loss was 10 ml and maximum loss was 252 ml. upto one hour the minimum loss was 22ml and the maximum loss was 299 ml.

**Table – 2 : Duration of third stage**

| Duration of 3rd stage in Mts. | ½ - 1 min | 1-2 min | 2-3 min |
|---|---|---|---|
| No. of patients | 13 | 72 | 15 |
| Percentage | 13 | 72 | 15 |

Average duration of third stage in minutes was 1 minutes 25 sec.

It is observed that 85% of patients had third stage duration of less than 2 minutes, 15% of patients had duration of more than 2 minutes.

**Table – 3 : Relation of duration of third stage to blood loss**

| Duration of 3rd stage in Mts. | ½ - 1 min | 1-2 min | 2-3 min |
|---|---|---|---|
| Blood loss in ml. | 46.23 | 58.39 | 95.50 |
| No. of patients | 13 | 72 | 15 |
| Percentage | 13 | 72 | 15 |

It is observed that the increase in 3rd stage duration was associated with increased blood loss.

## DISCUSSION

All patients had a spontaneous vaginal delivery and the age of patients ranged between 16 to 35 years and the parity between 14.

In the group of patients treated with methylergometrine, the average blood loss was 83.20 ml. the minimum blood loss was 32 ml and maximum blood loss was 626 ml. 92% of cases had a blood loss less than 150 ml. there was one case of postpartum haemorrhage in this group. Using oxytocin into umbilical vein the average blood loss was 62.38 ml. The minimum loss was 10 ml and maximum loss was 252 ml. 96% of cases had a blood loss less than 150 ml. there was no case of postpartum haemorrhage.

An attempt was made to compare the blood loss immediately after delivery in the two groups. This did not show any wide variation. This was on an average 83.20 ml in the methergin group and 62.38 ml in the oxytocin group. These values are not statistically significant.

A comparison of the average blood loss after one hour in the two groups in this study revealed that there was significantly lesser blood loss in the two groups. The blood loss in the oxytocin group is less than methylergometrine group.

Comparison of blood loss in other studied reports were as follows.

The third stage duration in the oxytocin group was significantly lesser than in the methergin group.

The results compared with other studies.
By Arun H.Nayak, Geeta M. Mhatre, Asha R.Dalai the mean duration of third stage in oxytocin group was 5.38 minutes.

By Priya Bhide, Amarnath Bhide and Shriish Daftary the mean duration was 5 minutes in oxytocin group.

As per the study of Devinder Kaur et al the average duration of third stage was 3.26 minutes in oxytocin group.

By Kharkwal et al the mean injection - placental expulsion time was 4.23 min.

Influence of age on the blood loss in the two groups on comparison showed that the age did not influence the amount of blood loss.

In both Methergin and Oxytocin groups, increase in parity did not result in increase in the amount of blood loss.

The weight of the neonate seems to have a definite influence on the blood loss. Increasing weight of the foetus causes increased blood loss. However in both the groups the increase was least.

It was noted that there was a definite relation between the blood loss and duration of third stage among the two groups. Increasing duration of the third stage was associated with a corresponding increase in blood loss.

In the methyl ergometrine group there were three cases of retained placenta. Of the three cases of retained placenta 2 expelled after being given oxytocin saline injection into the umbilical vein. While in the third case manual removal had to be done. No retained placenta occurred in oxytocin group.

A study of pulse, Blood Pressure was done before and after the drug administration with methylergometrine and oxytocin.

With Methylergometrine both systolic and diastolic blood pressure rise was noted. Systolic in 17% of cases and diastolic in 14% of cases. No rise of pulse was observed.

However with oxytocin no such changes noticed.

## CONCLUSION

The use of oxytocin in the management of third stage is useful particularly in patients in whom I.V. access is limited or when IV. fluids need to be restricted and in whom Methergin is contraindicated. Besides it is simple, safe, non invasive, cost effective and acceptable alternative method of active management of third stage labour.

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