DISSERTATION ON

ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR WITH IV METHERGINE, IM OXYTOCIN AND TRANSRECTAL MISOPROSTOL - A COMPARATIVE STUDY

Submitted to

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CHENNAI – 600 010

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CONTENTS

CERTIFICATE

This is to certify that the dissertation work titled **"ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR WITH IV METHERGINE, IM OXYTOCIN AND TRANSRECTAL MISOPROSTOL - A COMPARATIVE STUDY"** is a bonafide research work of **DR. R.ARUNA RANI,** Enrolment No……. Submitted in partial fulfillment of the requirements for the award of Degree of **M.D. OBSTETRICS & GYNAECOLOGY (BRANCH-II)** in **THE TAMIL NADU DR. M. G. R. MEDICAL UNIVERSITY** CHENNAI - 600 032.

Signature of H.O.D **Signature of Dean**

INTRODUCTION

INTRODUCTION

PostPartum Hemorrhage (PPH) is a nightmare even to the present day obstetrician as it is sudden, often unpredictable and the consequences may be catastrophic. The introduction of oxytocics in the prevention and management of PPH, has contributed to the reduction in maternal mortality rate (Moir 1955).[1]

PPH is the leading cause of matemal deaths in the developing world, responsible for 25 percent of all global deaths. Thus worldwide 125,000 women die due to Postpartum Hemorrhage.

The primary aim in the management of PPH should be its prevention. Hence any means of reducing the blood loss in the third stage without considerable side effect is always welcome.

Uterine atony remains the most common cause of postpartum hemorrhage. A review of major causes in postpartum bleeding pointed out uterine atony as the aetiology in 81% of PPH cases (Anjaneyulu et al., 1988). [2] Hence adequate contraction and retraction of uterus is essential for the prevention of Post Partum Hemorrhage.

Routine administration of oxytocics reduce the risk of postpartum hemorrhage by 40% (prendivilli et al 1988).[3]

The drugs commonly used in the active management of third stage of labour are

1. Oxytocin
2. Methyl ergometrine
3. 15 methyl PGF2α
4. Misoprostol.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Prendivillie et al in Bristol, in their trial of third stage management, found an incidence of postpartum bleeding of 5.9% in actively managed group and 17.9% in physiologically managed group; they concluded that the active management of third stage of labour reduces the risk of postpartum hemorrhage by 30-40% (Prendivillie et al 1988).[5]

The objective of prophylactic oxytocics is to ensure effective contraction and retraction of the uterus after the delivery of the infant, so as to promote separation and descent of the placenta, thus minimizing the amount of blood loss due to failure of occlusion of the capillaries in the placental site.

Lister (1950), Martin & Dumoulin (1953) established that intravenous ergometrine given with the crowning of the head or anterior shoulder reduces the risk of hemorrhage, but has some disadvantages. These were the precise timing of injection and the need for second attendant at the time delivery. Embrey (1961) kimbel (1954,58) added hyaluronidase to the intramuscular injection to speed up the action of ergometrine..

Randomized controlled study, comparing syntometrine i.m with rectal misoprostol 400 mcg showed that the third stage duration, post partum blood loss & post partum hemoglobin level were similar in both groups. (Bamingboye, Hofmeyret al 1998).[6]

Gerstenfeld TS wing et al, (2001)[8] revealed that rectal misoprostol 400mcg was as effective as intravenous oxytocin in the prevention of PPH, with no added advantage or effectiveness of one over the other.

Mitchel and elbourne (1993)[9] found that syntometrine administered intramuscularly concurrent with delivery of the anterior shoulder was more effective than oxytocin (5 units i.m) alone in the prevention of post partum hemorrhage.

Villar and colleagues (2002) [10]reviewed prophylactic use of misoprostol to prevent postpartum haemorrhage and concluded that oxytocin and ergot preparations are more effective.

Routine active management was shown to be superior to expectant management in that there was statistically significant reduction in the incidence of PPH, postpartum matemal hemoglobin of less than 9gm/dl, postnatal blood transfusions, the need for therapeutic oxytocics and the third stage lasting more than 20 minutes. These findings

were confirmed in general population and also in women considered to be at low risk for third stage complications. (Prendivillie et al 2002).

In the Dublin trial, complications like increase in diastolic blood pressure greater than 100 mmHg, maternal nausea, vomiting and headache were more common in the active management group (Begley 1990), but in the Bristol trial they were more common in the expectant management group (prendivillie et al 1988). Rogers et al 1998[13] trial found no difference in the two groups.

Cochrane database systematic review 2006[7] concluded that the active management is superior to expectant management in terms of blood loss and other serious complications of third stage. It is however noticed that an increased incidence of unpleasant sideeffects like hypertension and vomiting are when ergometrine is used. Still, active management should be made as routine in the management of third stage of labour in all institutions.

a) THE THIRD STAGE OF LABOUR

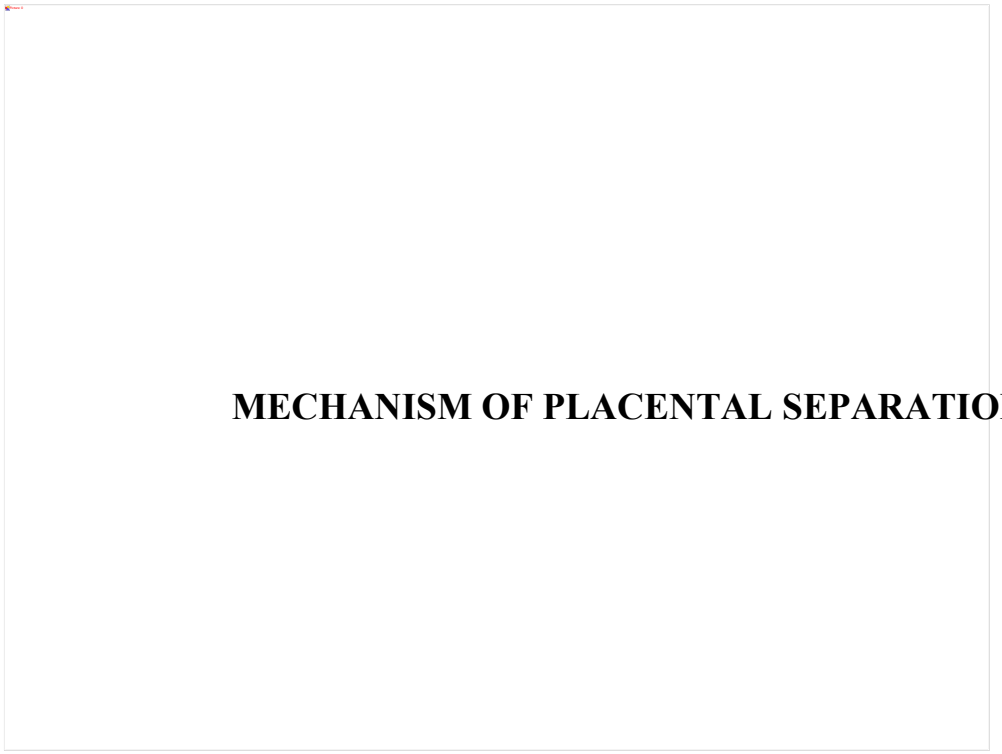
The third stage of labour is the period from the delivery of the baby until the delivery of the placenta. Following the excitement of the birth of the baby, delivery of the placenta is often viewed as dull and unimportant. However, management of this stage can directly influence important maternal outcomes such as Postpartum Hemorrhage and the need for manual removal of the placenta..

The mean length of third stage to labour is 6 minutes and the ninety seventh percentile is 3 minutes.[14]

PHYSIOLOGY

Recognition of the physiological events taking place during normal labour is important in the correct management of obstetric complications. At term the normal volume of blood flow through the placenta is 500- 800ml per minute.[15] At placental separation, this has to be arrested within seconds. Otherwise serious hemorrhage will occur.

MUSCLE FIBRES OF THE UTERUS - LIVING LIGATURE



MECHANISM OF PLACENTAL SEPARATION

Duncan's Mechanism **Schultze's Mechanism**

There are three interrelated physiological mechanisms for this:

1) Contraction and Retraction of the oblique uterine muscle fibres in the upper uterine wall, which are arranged in criss cross manner, with vessels intertwined between them act as –**LIVING LIGATURE**, minimizing the blood loss.

2) Following separation, the strong uterine contraction brings the uterine walls into apposition so that further pressure is exerted on the placental site,so that the torn vessels are occluded by themselves.

3) There is increased activation of the coagulation and fibrinolytic system around the placental site so clot formation in the torn vessels is intensified.

The main uterotonics responsible for uterine contraction are oxytocin & prostaglandins.[16]

PHENOMENA OF THE THIRD STAGE

1) Characteristic uterine contractions.
2) Separation of the placenta
    a) Schultze mechanism
    b) Duncan mechanism
3) Expulsion of the placenta
4) Control of hemorrhage
5) Permanent contraction & retraction of the uterus
   Normal blood loss doesn't exceed 250ml.

PLACENTAL SEPARATION - SIGNS & SYMPTOMS

1) Patient complains of pains associated with contraction .

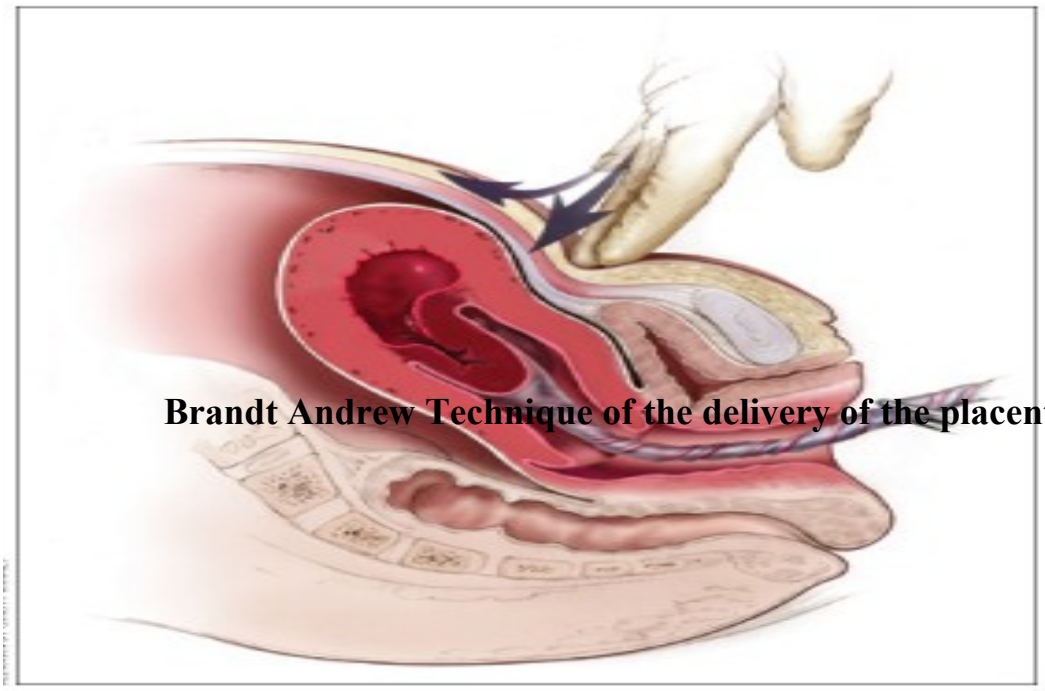
2) There will be slight amount of fresh vaginal bleeding.

3) Extravulval portion of the cord lengthens.

4) Fundus of the uterus rises above the umbilicus.

5) Soft elevation above the symphysis with a depression immediately above indicating placenta has been separated and is lying in the lower uterine segment.

6) If fundus of the uterus is gently grapsed & raised, the cord will not recede, if the placenta has separated. Whereas if the placenta is still adherent to the uterus, the portion of the cord just outside the vulva will be drawn into the vagina.



Brandt Andrew Technique of the delivery of the placentas

PHYSIOLOGICAL OR EXPECTANT MANAGEMENT OF THIRD STAGE OF LABOUR

It involves waiting for signs of separation and allowing the placenta to expel spontaneously or aided by gravity or nipple stimulation (Manually or by breast feeding).

1) No uterotonic until after the delivery of the placenta.
2) No cord traction.
3) Cord is clamped after cessation of pulsation.(Roger J,Wood J et al, 1998).[17]

ACTIVE MANAGEMENT OF THE THIRD STAGE OF LABOUR

It was first described by Thilaganathan and colleagues in 1993.[18]
The management includes,

1) Prophylactic use of oxytocic drug.
2) Early cord clamping **which reduces the** duration of third stage

   (Enkin et al 1995).[19]

3) Controlled cord traction

   -Brandt Andrew technique of the delivery of the placenta.

4) Fungal massage

Disadvantages

There is an increased incidence of retained placenta (1-2%) and consequent increase incidence of manual removal.

Advantages

1. Reduces blood loss approximately to one fifth of normal blood loss

2. Shortens the duration of third stage to one half of the normal duration

ABNORMALITIES OF THIRD STAGE OF LABOUR

1) Retained Placenta

2) Inversion of uterus.
3) Postpartum Hemorrhage.

b) POSTPARTUM HEMORRAHAGE

Defined as the blood loss of 500ml or more following vaginal delivery and 1000ml or more following Caesarean Section.

Primary PPH – Occur with in first 24 hrs after delivery.
Secondary PPH – Loss of blood from the genital tract after 24hrs postpartum and within 6wks of delivery.

Postpartum hemorrhage occurs in 2-11% of deliveries (Gilbert et al 1987, [20] Brant 1967: [21]Newton et al 1961, [22] but in many instances, when blood loss is estimated visually, it is underestimated (Gilbert et al 1987).Quantitative measurement of blood loss increase the PPH rate to 20%(Newton et al 1961) but life threatening hemorrhage occurs in approximately 1 per 1000 deliveries (Lewis and Drife 1998).

Pritchard and associates (1962) found that 5 percent of women delivering vaginally lost more than 1000ml of blood. They also observed that the estimated blood loss is commonly only about half the actual loss in most cases.

ACOG defines PPH as blood loss which decreases the haematocrit by 10 percent or needs blood transfusion.

FACTORS PREDISPOSING TO POSTPARTUM HEMORRHAGE

1) **Uterine Atony**:

Accounts for 70- 80% of cases of PPH

- ❖ Prolonged labour
- ❖ Uterine overdistension (large fetus, twins, hydramnios)
- ❖ Antepartum Hemorrhage
- ❖ Precipitate labour
- ❖ General anaesthesia
- ❖ Uterine fibroids
- ❖ High parity
- ❖ Excessive or prolonged use of oxytocics in labour
- ❖ Magnesium sulphate in labouring patient.
- ❖ Uterine atony in previous pregnancy
- ❖ Chorioamnionitis

2) **Retained Placenta**:

- ❖ Uterine fibroids
- ❖ Previous caesarean delivery
- ❖ Previous curettage
- ❖ Excessive handling of uterus prior to separation

3) **Laceration of birth canal**

- ❖ Precipitous labour
- ❖ Instrumental delivery
- ❖ Breech extraction
- ❖ Delivery of large baby

4) **Coagulation disorder** :

- ❖ Anticoagulant therapy
- ❖ Abruptio placentae
- ❖ Intrauterine fetal death

- ❖ Amniotic fluid embolism
- ❖ Hemorrhagic shock
- ❖ Infection – Septicemia
- ❖ Coagulation disorder eg. Thrombocytopenia.

CLINICAL DIAGNOSIS

Signs and symptoms are related to the amount of blood loss

Parameter	Class I	Class II	Class III	Class IV
1. Blood volume loss %	<15	15-30	30-40	>40
(ml)	<750 ml	750-1500	1500-2000	>2000
2. Heart rate	No Change	Tachycardia	Moderate Tachycardia	Marked Tachycardia
3. Respiration	No change	Tachypnoea	Tachypnoea	Marked Tachypnoea
4. Urine output ml/hr	>30	20-30	5-15	Anuria
5. Mental status	Normal	Anxious	Confused	Obtunded

Prophylactic Measures

The primary aim of the obstetrician in the management of PPH should be prediction and prevention.

During Pregnancy

i. Women at high risk of PPH should be identified & referred to tertiary care centre for delivery.

ii. Anemia in the antenatal period should be prevented with iron supplementation.

During Labour

i. Patients deemed to be at high risk of PPH, at the onset of labour should have blood taken for hemoglobin estimation, grouping, Rh typing & crossmatching, so that blood will be available when needed at short notice.

ii. Active management of third stage of labour.

Management of Primary Post Partum Hemorrhage

Early detection of PPH and effective blood replacement – the first step towards good management (Hayaishi 1982).[25]

It requires multidisciplinary team management. It involves simultaneous resuscitation of the patient and identification of the cause and instituting definite treatment.

RESUSCITATION

- Quick Assessment of the general condition, blood loss and call for assistance.
- Two IV lines with large bore cannula should be started with colloid (hemacel, gelo fusine) running stat through one line and crystalloids (Hartmann's 0.9 percent saline) through the other, till blood arrives.
- Nasal O_2 6-8 litres of 100% oxygen through mask.
- Bladder to be catheterized.
- Transfusion of blood and blood products
- Monitoring of vital parameters

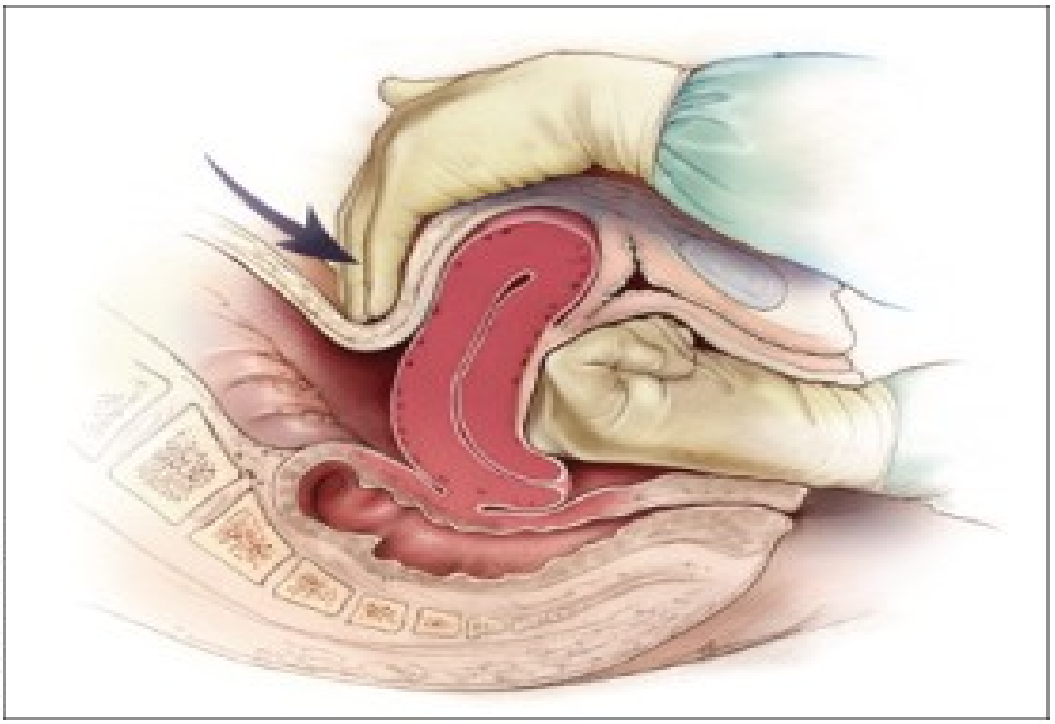
ESTABLISHING A CAUSE:

It should be done in parallel to stabilization.

1. Check contractility of the uterus.
2. Rechecking the entirety of the Placenta and membranes.
3. Exploration of the genital tract to rule out traumatic cause.

I UTERINE ATONY

- Accounts for the majority of cases of PPH (70- 80%).
- It occurs when the uterine corpus fails to contract and retract following delivery. Thereby permitting continued blood loss from the placental site (Haysashi 1982) immediately after delivery of the infant and placenta. Uterine bleeding, associated with a soft, boggy uterus on palpation is characteristic of uterine atony. Often the uterus will relax with recurrent bleeding, once massage is discontinued. (Pritchard et al 1985, Whitfield 1986).



Bimanual Compression of the Uterus

TREATMENT

1. UTEROTONIC AGENT

a) Intravenous Methergine 0.2mg unless contraindicated every 2-4 hrs maximum dose 0.6mg
b) A drip containing 20units of Oxytocin in 1000 ml of Ringer Lactate or Normal Saline, administrated intravenously at 10ml /min.
c) 15-methylderivative of Prostaglandin F2alpha (carboprost tromethamine) 250mcg every 15 to 90 minute maximum of eight doses.
d) Prostaglandin E_1 analogue T.Misoprostol 1000mcg transrectally.

2. NON SURGICAL METHODS

a) Bimanual compression of the uterus:

One whole hand is introduced into the vagina with the fingers aligned like cone. This hand in the vagina is placed in the anterior fornix while the other hand on the abdomen brings the uterus over the fist in the vagina so that the uterine walls are compressed. The procedure continues until the uterus becomes contracted and hard.

b) Uterine Packing:

i) 24F Foley's catheter (30 ml balloon) distended with 60-80ml of saline
ii) Gauze rolls.

3. SURGICAL METHODS

1. Uterine Brace sutures: B- Lynch suture
2. Hemostatic Multiple square suturing technique
3. Uterine artery ligation
4. Infundibulopelvic vessel ligation
5. Internal Iliac artery ligation
6. Arterial embolisation
7. Hysterectomy

II. RETAINED PLACENTA

Defined as failure of the placenta to be separated and expelled within 30 minutes of delivery of the baby.

Treatment

An infusion of oxytocin (40 IU in 500 ml 0.9% saline at a rate of 125 ml/hr) is set up

i) To maintain uterine contraction.
ii) To facilitate manual removal of placenta under anesthesia.

III INJURIES TO THE GENITAL TRACT

Optimal repair of the genital tract lacerations requires correct positioning of the patient, satisfactory analgesic anesthesia, adequate lighting and exposures, along with appropriate assistance and instruments, preferably in an operation theatre.

IV ACUTE INVERSION OF THE UTERUS

- The uterus being turned inside out may occur immediately after delivery. It is brought about either by pressure from above or by traction from below, in the presence of an atonic uterus and a soft dilated os.

Treatment

1. Manual repositioning of the uterus.
2. O' sullivans hydrostatic method.
3. Abdominal approach.
    a) Huntington's method.
    b) Haultain's technique.

C) PHARMACOLOGY OF DRUGS:

Drug	Onset of action	Mode of action
1) Ergometrine im iv	 7min 20-40sec	 More prolonged tetanic contraction
2) Oxytocin im iv	 3 minutes immediately	Induces rhythmic contraction of uterus
3) Syntometrine im	 2 minutes	Induces rhythmic & tetanic contraction
4) PGE_1, misoprostol oral rectal	 2 minutes peaking between12-30 minutes Slow, peaking between 1-2hrs	Myometrial contraction
5) $PGF_2\alpha$ im	 5 minutes	Myometrial contraction and vasoconstriction

METHRGINE

- Chemical Name: Methyl Ergonovine maleate
- Semisynthetic ergot alkaloid used for prevention and control of PPH
- Chemically methyl Ergonovine maleate is designated as ergoline – 8-cargboxam 9,10, didehydro –N (1- Hydroxy methyl)Propyl) 6- Methyl – [8 B(S)] – (Z)-2 butemaleate.
- O.2 mg in 1ml ampoule im/iv

Clinical pharmacology

It acts directly on smooth muscle of the uterus and increases the tone, rate and amplitude of rhythmic contractions; induces rapid and sustained tetanic uterotonic effect which shortens the third stage duration and blood loss.

PHARMACOKINETICS

On IV route, it is rapidly distributed from plasma to peripheral tissue in 2-3 minutes or less

Eliminated by hepatic metabolism

ONSET OF ACTION

IV- immediately (30-40sec)
IM- 2-5 minutes
Oral – 5-10 minutes

CONTRA INDICATIONS

- Hypertension
- Toxemia
- Hypersensitivity
- Liver, vascular & renal disease

Cardiac disease.

Adverse Effects

- Nausea, vomiting
- Headache
- Hypertension with seizures

Rarely - Myocardial infarction, transitent chest pain, arterial spasm, tachycardia, dyspnoea, thrombophebitis.

Stored at 2-8˚C, protected form light, (De Groot 1995)[26] loses 90% of its potency after I yr of storage at 21˚C to 25˚C.

OXYTOCIN

- Is a naturally occurring uterotonic, first reported by Du Vigeaud in 1953
- Half life – 3.5 minutes
- Route of administration – im or iv
- While intravenous administration provides immediate drug availability, Pharmacokinetic data show that even with im route, oxytocin is found in the circulation in the blood within 2-3 minutes (Gülmezoglu et al 2002)[27]
- Mode of action- increases the frequency & amplitude of contraction
- Storage – 15- 30˚c, protect from freezing .

Side effects:

1) Injudicious use of oxytocin during labour – causes fetal asphyxia and rupture uterus
2) Water intoxication due to its antidiuretic action (Whaley. And Pritchard, 1963)[28]
3) Hypotension
4) Cardiac arrhythmias.

MISOPROSTOL

Prostaglandins was the name given by von Euler in 1935 to a substance found in extract and secretions of the human prostrate and seminal vesicle. They are derived form arachidonic acid.

PGE_1, analogue
Methyl ester of PGE_1
Cheap, stable at room temperature long shelf life, easily administered (oral or vaginal or rectal)
Absorption of misoprostol is very rapid. oral – 2 minutes, peaking between 12-30 minutes.

Mechanism of action

1. It binds to both E_2 and E_3 prostanoid receptor and stimulates muscle contraction.
2. It exerts a protective effect on the gastrointestinal mucosa by increasing mucus and bicarbonates ion secretion and also inhibit acid secretion.

Dosage

400mcg- 600mcg - prophylactic for PPH
800- 1000mcg - therapeutic for PPH.

Pharmacokinetic

Primary site of metabolism is in liver and less that 1% is excreted in urine. So dose has to be adjusted in patients with liver disease.[29]

Side effects

High temperature, tachycardia, sweating tachypnoea, shivering, vomiting, and diarrhoea.

AIM OF THE STUDY

AIM OF THE STUDY

To evaluate and compare IV Methergine, IM Oxytocin and Transrectal Misoprostol in the Active Management of Third Stage of Labour, with regard to the:

i) Duration of third stage of labour.
ii) Blood loss during the third stage of labour.
iii) Occurence of side effects of the drugs.

MATERIALS

&

METHODS

MATERIALS AND METHODS

300 patients were included in the study.

100 patients were allotted IV Methergine (0.2 mg) during anterior shoulder delivery under Group I.

100 patients were allotted I.M Oxytocin 10U after delivery of the baby under Group II.

100 patients were allotted Transrectal Misoprostol 600 mcg after delivery of the baby under Group III.

Study period (May 2008 –August 2008)

INCLUSION CRITERIA

1) age 20-35yr
2) >37 wks of gestation
3) Singleton pregnancy
4) Vertex presentation
5) No fetal distress on admission

EXCLUSION CRITERIA

1) Previous caesarean section
2) Multiple pregnancy
3) Breech presentation
4) Multipara > 5
5) Intrauterine fetal death
6) Previous scarred uterus (mymectomy / hysterotomy)
7) Cardiac / Renal/ Hepatic/ Epileptic/ Severe PIH/ Severe Anemia

METHOD

Procedure of drug administration

Group I - Inj Methergine 0.2mg was given intravenously during the delivery of the anterior shoulder of the baby.

Group II - Inj Oxytocin 10IU im given after the delivery of the baby within a minute.

Group III- T.Misoprostol 600mcg kept transrectally immediately after the delivery of the baby.

Estimation of blood loss

After the delivery of the baby, a blood collecting calibrated drape was placed underneath the gluteal region, and tied anteriorly over the abdomen and thighs. The collected blood is measured after 1hr of delivery in ml.

FACTORS OBSERVED

1) Labour- spontaneous, induced, augmented
2) Duration of 1st, 2nd and 3rd stage of labour
3) Amount of blood loss during 3rd stage of labour
4) Hemoglobin - before and after delivery
5) BP - 1min and 5 min after drug administration
6) Third stage complications if any
7) Side effects of the drugs.
8) Any other uterotonics – needed
9) Treatment of the complications , blood transfusion if any given

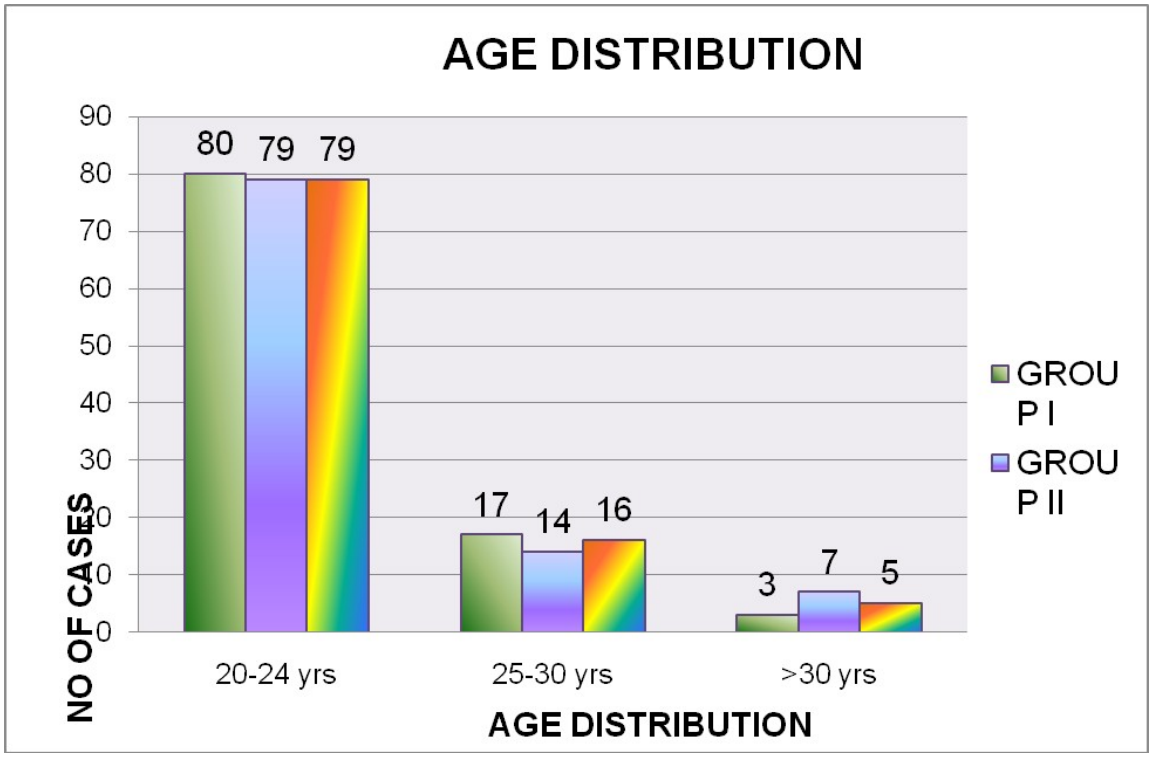

AGE DISTRIBUTION
90
80
70
60
50
40
30
20
10
0
80
79
79
17
14
16
3
7
5
NO OF CASES
20-24 yrs
25-30 yrs
>30 yrs
AGE DISTRIBUTION
GROUP I
GROUP II

TABLE - 1
AGE DISTRIBUTION

AGE	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
20-24yr	80	79	79	238	79.3%
25-30yr	17	14	16	47	15.7%
>30yr	3	7	5	15	5.0%
Total	**100**	**100**	**100**	**300**	**100%**

In all the three groups studied 80% of the cases are between 20-24yrs of age.

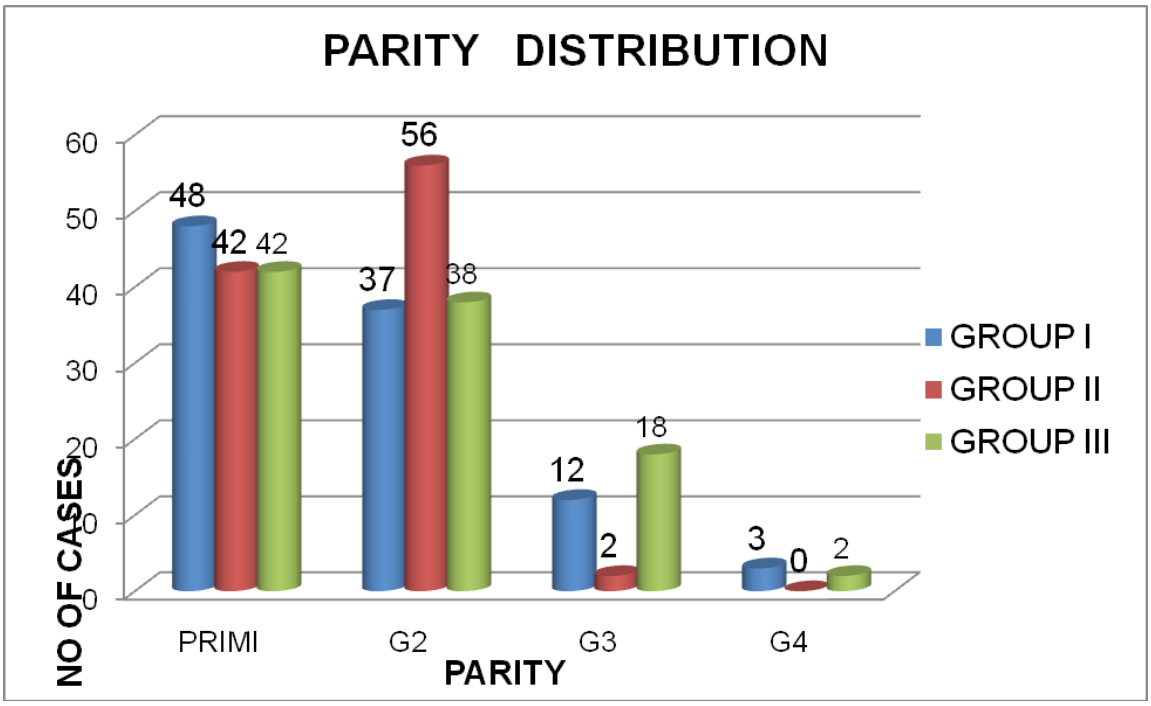

PARITY DISTRIBUTION
60
50
40
30
20
10
0
NO OF CASES
48
42
42
37
56
38
12
2
18
3
0
2
PRIMI
G2
G3
G4
PARITY
GROUP I
GROUP II
GROUP III

TABLE -2
PARITY

PARITY	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
Primi	48	42	42	132	44.0%
Gravida 2	37	56	38	131	43.7%
Gravida 3	12	2	18	32	10.7%
Gravida 4	3	0	2	5	1.7%
Total	**100**	**100**	**100**	**300**	**100%**

In all the three study groups, primigravidae constitute more than 40%, where as Gravida II formed 56% in Oxytocin group & <40% in other groups.

Gravida III averaged 10.7% & Gravida IV 1.7%.

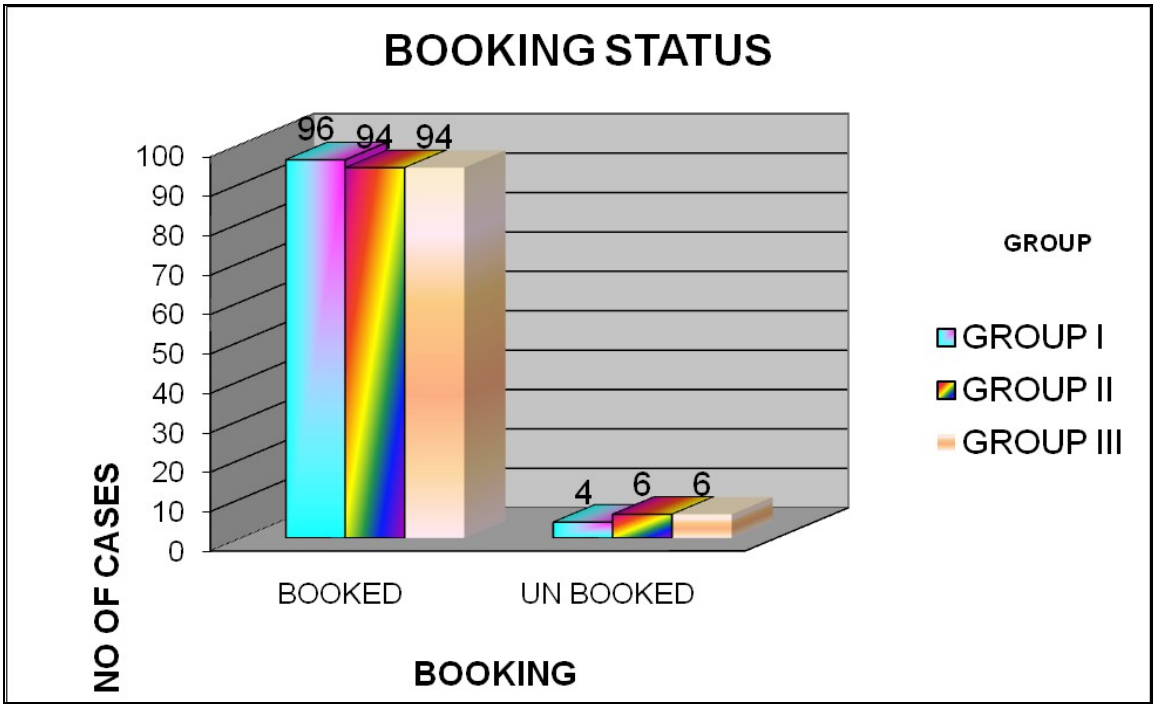

BOOKING STATUS
96
94
94
4
6
6
100
90
80
70
60
50
40
30
20
10
0
BOOKED
UN BOOKED
NO OF CASES
BOOKING
GROUP
GROUP I
GROUP II
GROUP III

TABLE-3
BOOKING STATUS

Booking Status	**Methergine**	**Oxytocin**	**Misoprostol**	**Total**	
	No.	No.	No.	No.	%
Booked	96	94	94	284	94.7%
Unbooked	4	6	6	16	5.3%
Total	**100**	**100**	**100**	**300**	**100%**

More than 90% were booked case in all the three groups.

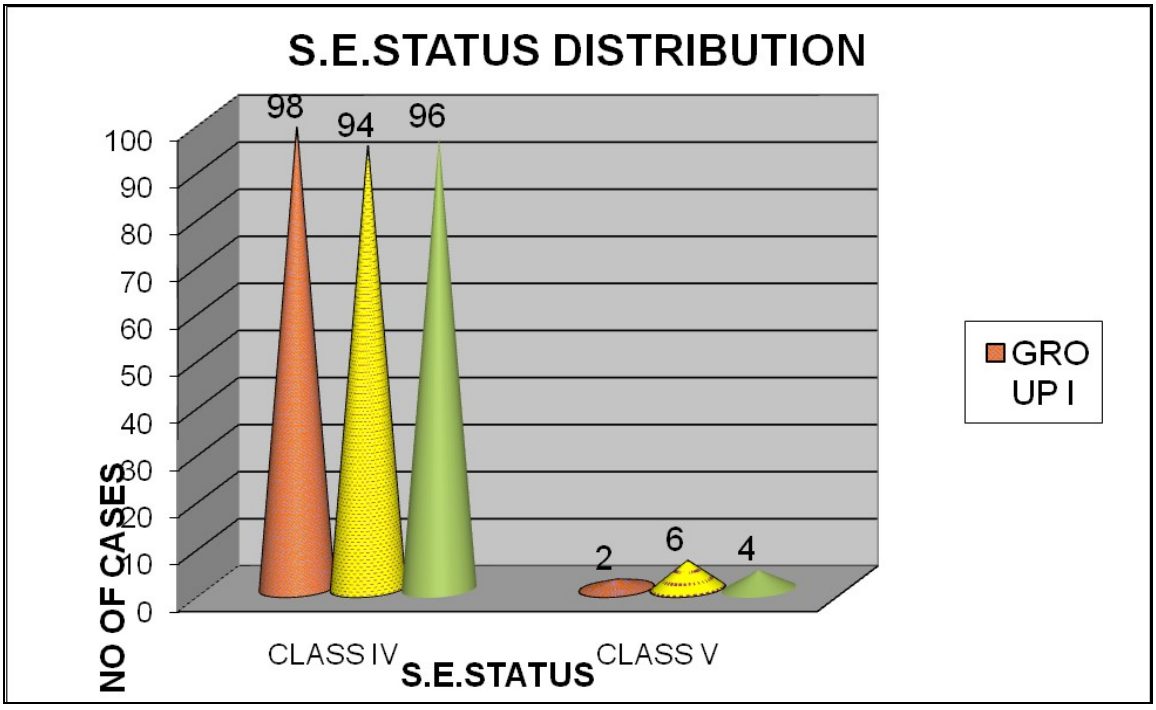

S.E.STATUS DISTRIBUTION
98
94
96
2
6
4
100
90
80
70
60
50
40
30
20
10
0
NO OF CASES
CLASS IV
CLASS V
S.E.STATUS
GRO
UP I

TABLE-4
SOCIO – ECONOMIC STATUS

S.E.Status	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
Class IV	98	94	96	288	96.0%
Class V	2	6	4	12	4.0%
Total	**100**	**100**	**100**	**300**	**100%**

More than 95% of the cases belonged to socio economic status class IV in all the three groups.

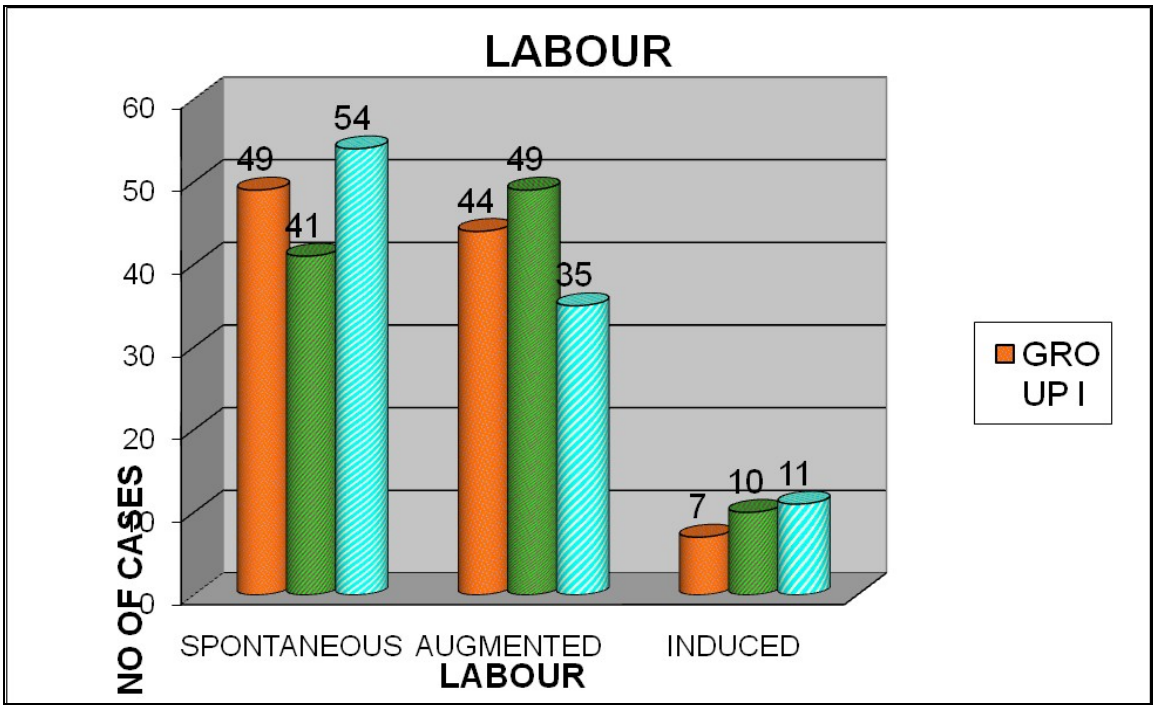

LABOUR
60
50
40
30
20
10
0
NO OF CASES
49
41
54
44
49
35
7
10
11
SPONTANEOUS
AUGMENTED
INDUCED
LABOUR
GRO
UP I

TABLE -5
LABOUR

LABOUR	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No	No.	%
Spontaneous	49	41	54	144	48.0%
Augmented	44	49	35	128	42.7%
Induced	7	10	11	28	9.3%
Total	**100**	**100**	**100**	**300**	**100%**

In Group I, spontaneous onset of labour constitute 49%, augmented labour -44% and induced labour-7%

In group II, 41% had spontaneous labour -41% augmented labour- 49% and Induced labour in 10% of cases.

In group III, 54% had spontaneous labour, 35% augmented and 11% induced labour.

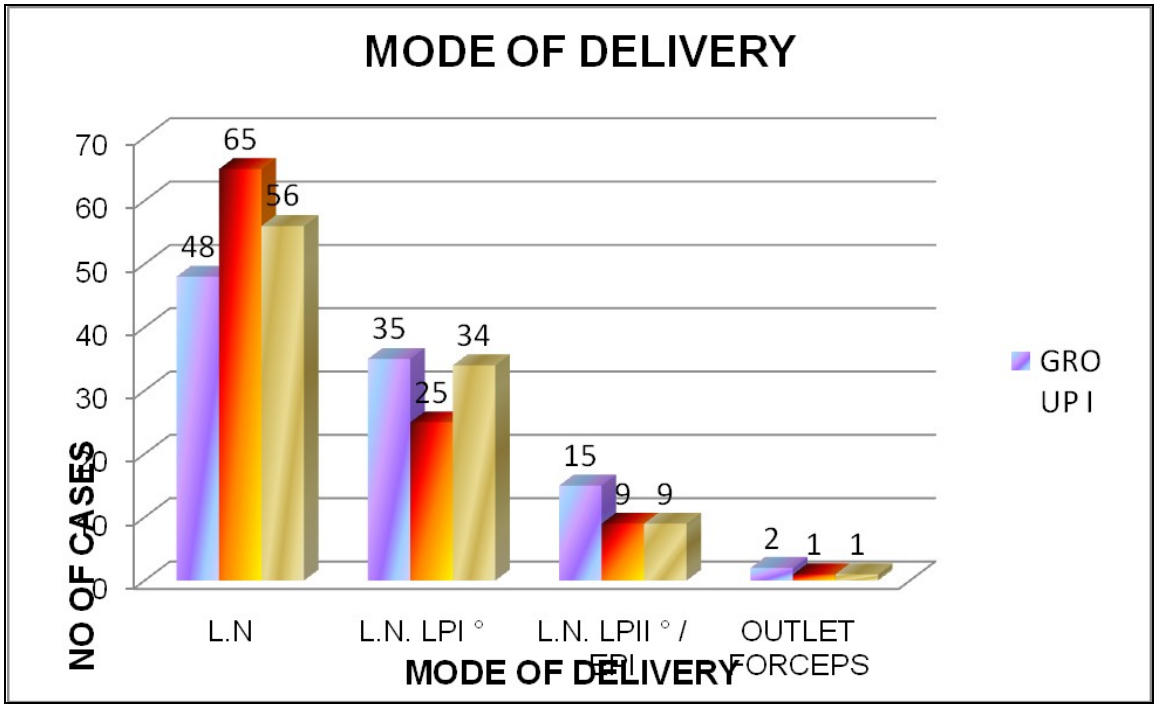

MODE OF DELIVERY
70
60
50
40
30
20
10
0
NO OF CASES
65
56
48
35
34
25
15
9
9
2
1
1
L.N
L.N. LPI °
L.N. LPII ° / FPI
OUTLET FORCEPS
MODE OF DELIVERY
GRO
UP I

TABLE-6
MODE OF DELIVERY

Mode Of Delivery	**Methergine**	**Oxytocin**	**Misoprostol**	**Total**	
	No.	No.	No.	No.	%
L.Natural	48	65	56	169	56.3%
L.N LPI˚	35	25	34	94	31.3%
LN.LPII˚/ EPI	15	9	9	33	11.0%
Outlet forceps	2	1	1	4	1.3%
Total	**100**	**100**	**100**	**300**	**100%**

In all the three groupss, Labour natural constituted above 50-60%, LN with LPI˚ constituted 25-35%, LN with LPII˚ / Epi constituted 9-5%, outlet forceps constitute around 1-4%.

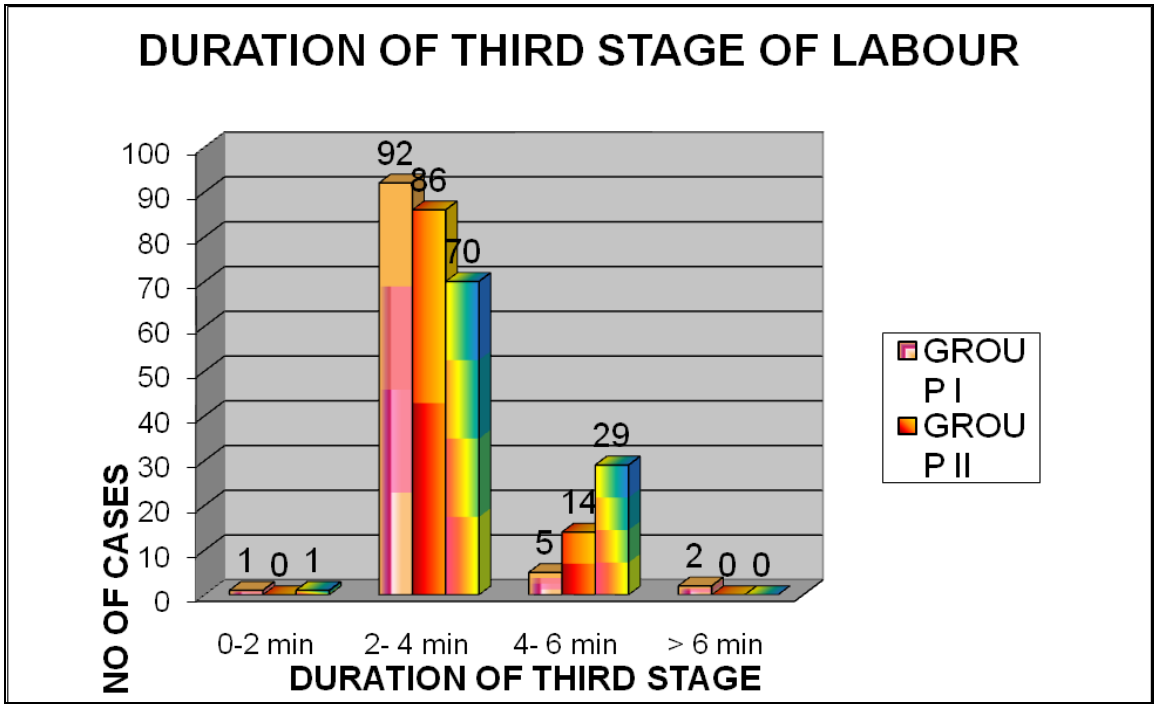

DURATION OF THIRD STAGE OF LABOUR
100
90
80
70
60
50
40
30
20
10
0
NO OF CASES
92
86
70
29
14
5
1
0
1
2
0
0
0-2 min
2- 4 min
4- 6 min
> 6 min
DURATION OF THIRD STAGE
GROUP I
GROUP II

TABLE-7
DURATION OF THIRD STAGE OF LABOUR

Duration of Third stage of labour in minutes	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
0-2 min	1	0	1	2	0.7%
2-4min	95	86	60	238	79.3%
4-6min	5	14	39	58	19.3%
>6min	2	0	0	2	0.7%
Total	**100**	**100**	**100**	**300**	**100%**

In group I, duration of third stage of labour was 2-4 min in 92% of the cases.

In group II duration of 2-4 in 80% of the cases

In group III duration of 2-4Min in 60% of the cases

DURATION OF THIRD STAGE

	N	Mean	Std. Deviation	Std. Error
Group I	100	195.1500	135.87066	13.58707
Group II	100	209.3000	26388490	2.68849
Group III	100	242.4600	173.58329	17.35833
Total	**300**	**212.3033**	**128.7749**	**7.43093**

P=0.117
Not Significant

There is no statistical significance among the means of the Groups pertaining to duration of third Stage

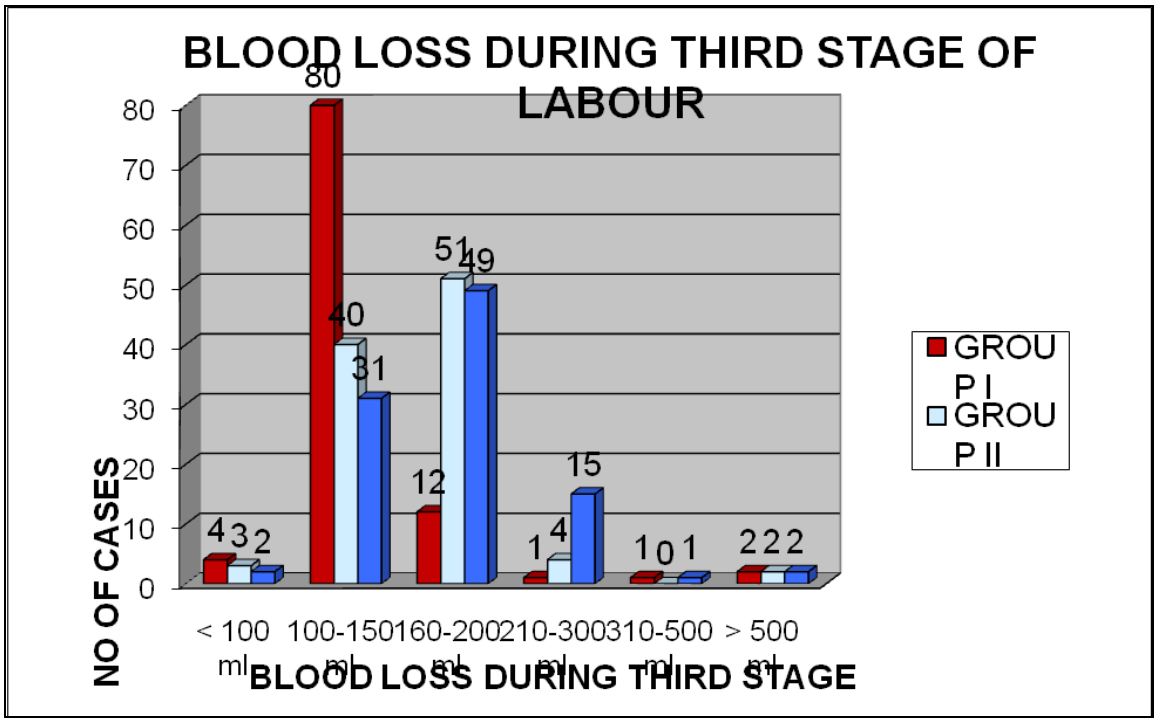

BLOOD LOSS DURING THIRD STAGE OF LABOUR
NO OF CASES
80
70
60
50
40
30
20
10
0
4 3 2
80
40
31
12
51
49
1
4
15
1 0 1
2 2 2
< 100 ml
100-150 ml
160-200 ml
210-300 ml
310-500 ml
> 500 ml
BLOOD LOSS DURING THIRD STAGE
GROUP I
GROUP II

TABLE-8
BLOOD LOSS DURING THIRD STAGE OF LABOUR

BLOOD LOSS	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
<100ml	4	3	2	9	3%
100-150ml	80	40	31	151	50.3%
160-200ml	12	51	49	112	37.3%
210-300ml	1	4	15	20	6.7%
310-500ml	1	0	1	2	.7%
>500ml	2	2	2	6	2%
Total	**100**	**100**	**100**	**300**	**100%**

Blood loss of 100- 150ml present in 80% of GroupI, 40% of GroupII and 31% of group III.

Blood loss of 160-200ml present in 12% of GroupI, 51% of Group II and 49% of Group III.

Mean blood loss in Group I – 145 ml
Group II - 165 ml
Group III - 178 ml

AMOUNT OF BLOOD LOSS

	N	Mean	Std. deviation	Std. Error
Group I	100	145.2000	51.09864	5.10986
Group II	100	165.2000	61.81563	6.18156
Group III	100	178.7900	63.78140	6.37814
Total	300	163.0633	60.56119	3.49650

P=O.OOO

Significant

There is statistical significance among the means of the three Groups pertaining to the blood loss during third stage of labour.

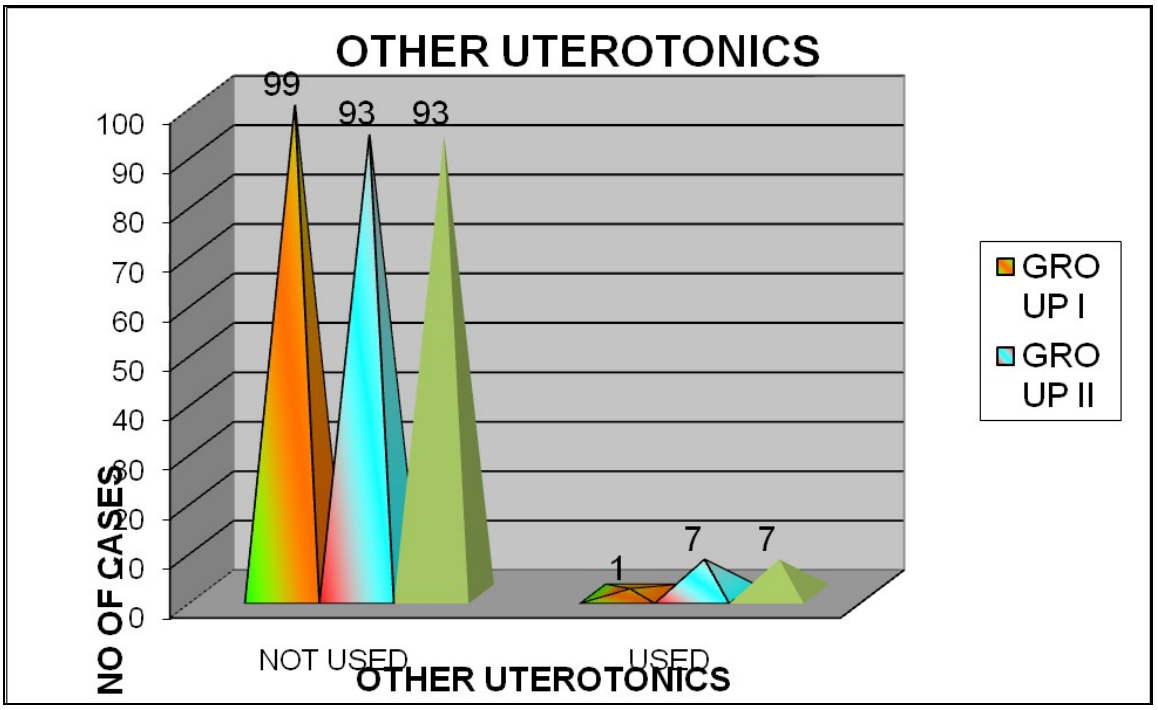

OTHER UTEROTONICS
99
93
93
1
7
7
100
90
80
70
60
50
40
30
20
10
0
NO OF CASES
NOT USED
USED
OTHER UTEROTONICS
GRO UP I
GRO UP II

TABLE -9
OTHER UTEROTONICS USED

Other uterotonics	**methergine**	**oxytocin**	**Misoprostol**	**Total**	
	No.	No.	No.	No.	%
Not used	99	94	92	285	95%
Used	1	6	8	15	5%
Total	**100**	**100**	**100**	**300**	**100%**

In group I, only one case needed additional uterotonic oxytocin 10 units IV infusion. In group II, other uterotonic was used in 6% of the cases and 8% of the cases in group III needed other uterotonics.

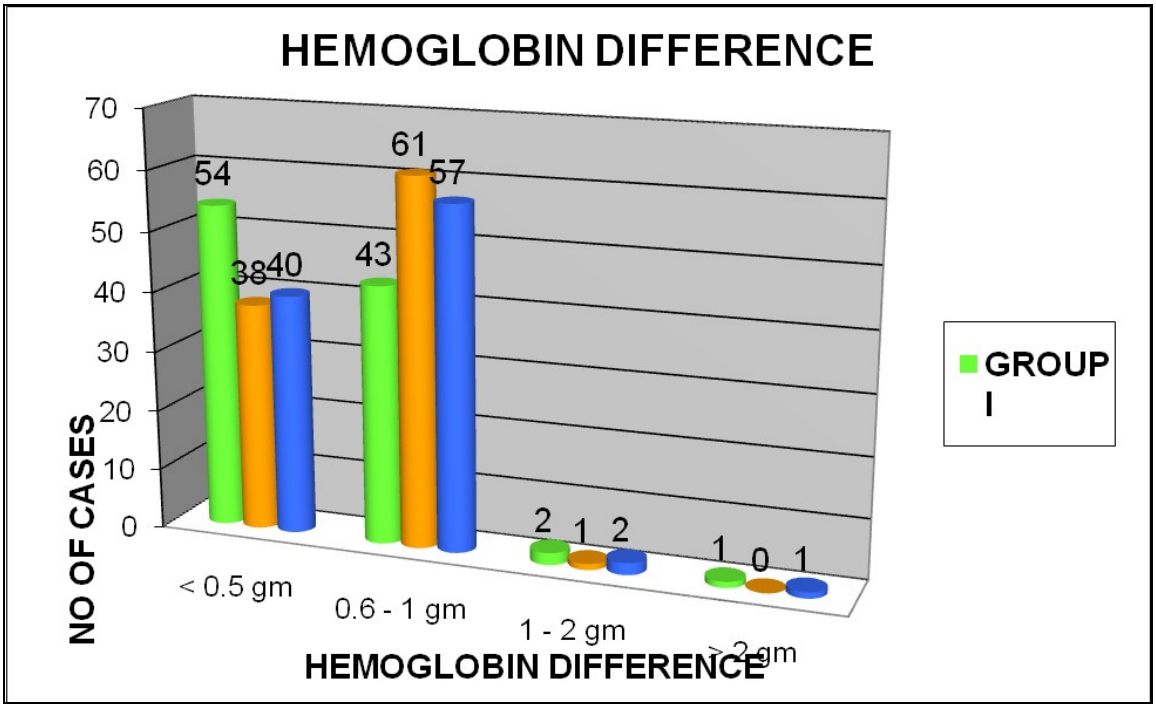

HEMOGLOBIN DIFFERENCE
70
60
50
40
30
20
10
0
NO OF CASES
54
38
40
43
61
57
2
1
2
1
0
1
< 0.5 gm
0.6 - 1 gm
1 - 2 gm
> 2 gm
HEMOGLOBIN DIFFERENCE
GROUP I

TABLE-10
HAEMOGLOBIN DIFFERENCE

Haemoglobin Difference	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
<0.5gm	54	38	40	132	44.0%
0.6-1gm	43	61	57	161	53.7%
1-2gm	2	1	2	5	1.7%
>2gm	1	0	1	2	.7%
Total	**100**	**100**	**100**	**300**	**100%**

When Hb % was estimated before & after delivery, the fall in Hb%was as follows;

In group I, 54% of the cases had Hb difference of < 0.5 gm.
In group II, 61% of the cases had Hb difference of 0.6-1gm.
In group III 57% of the cases had Hb difference of 0.6-1gm.

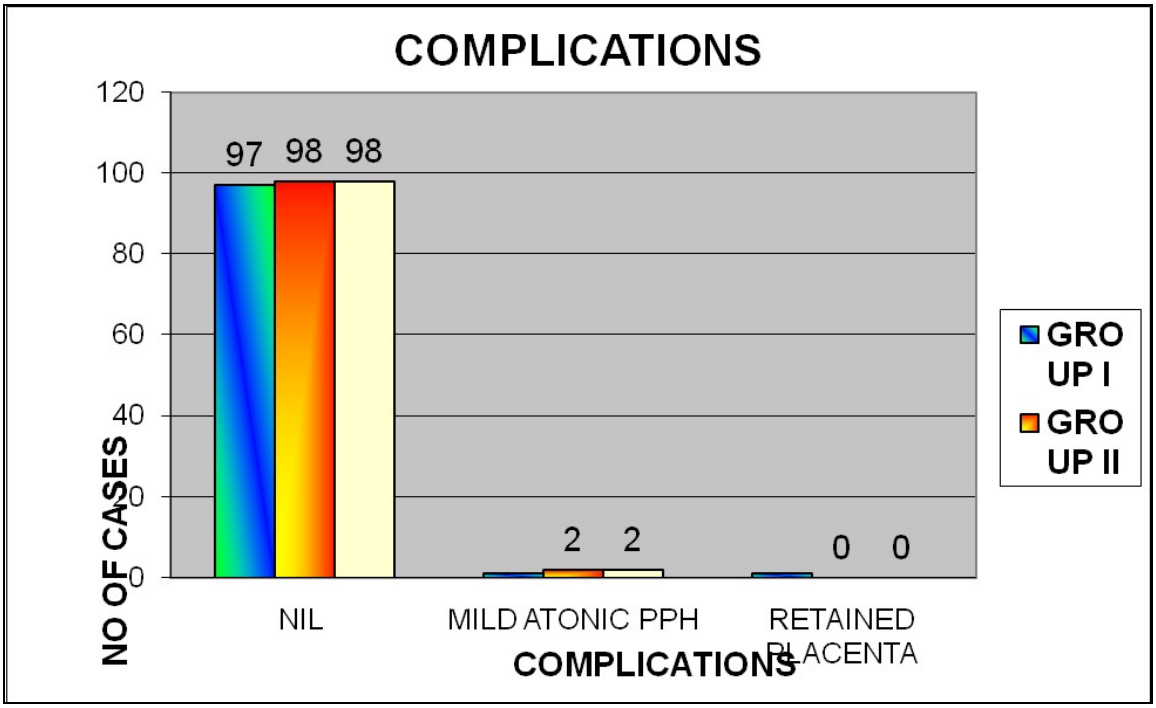

COMPLICATIONS
120
100
80
60
40
20
0
NO OF CASES
97
98
98
2
2
0
0
NIL
MILD ATONIC PPH
RETAINED PLACENTA
COMPLICATIONS
GROUP I
GROUP II

TABLE-11
COMPLICATIONS

Complications	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
Nil	97	98	98	293	97.7%
Mild Atonic PPH	1	2	2	5	1.7%
Retained Placenta	2	0	0	2	.7%
Total	100	100	100	300	100%

In group I, Retained placenta was seen in about 2% of the cases & 1 had mild atonic PPH while 97% had no complication.

In group II and group III, 98% had no complications, but mild atonic PPH was noticed in about 2% of the cases.

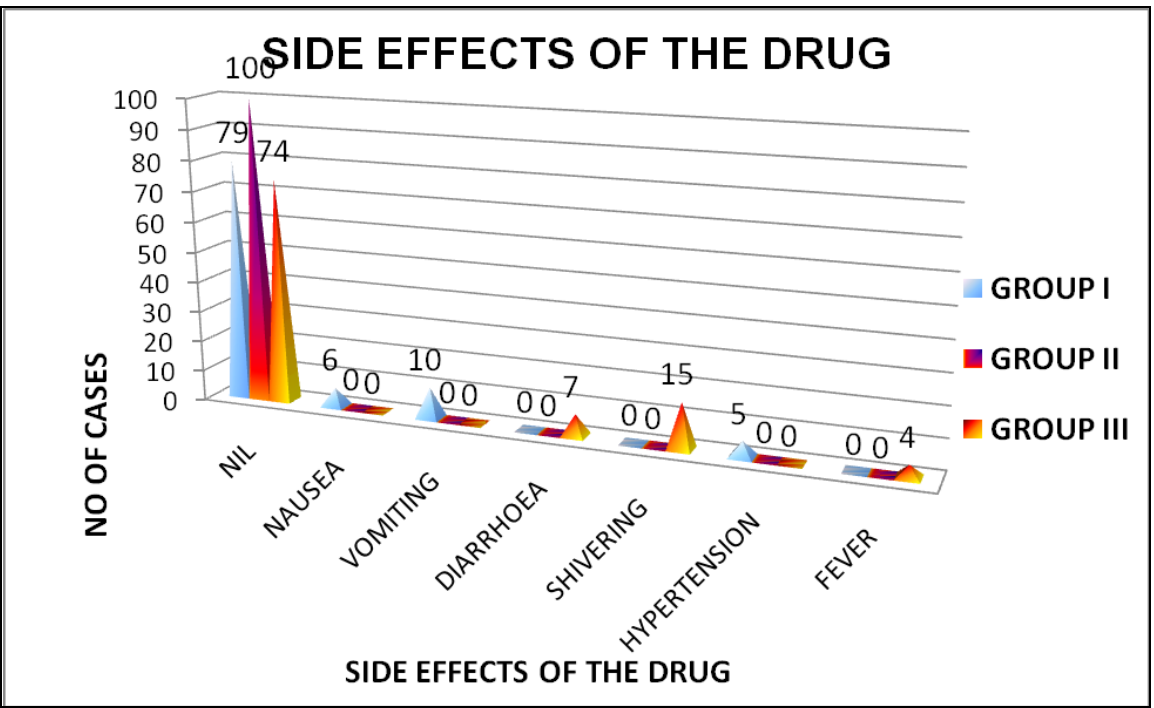


TABLE-12
SIDE EFFECTS OF THE DRUGS

Side Effects Of The Drug	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
Nil	79	100	74	253	84.3%
Nausea	6	0	0	6	2.%
Vomiting	10	0	0	10	3.3%
Diarrhoea	0	0	7	7	2.3%
Shivering	0	0	15	15	5%
Increase in BP	5	0	0	5	1.7%
fever	0	0	4	4	1.3%
Total	**100**	**100**	**100**	**300**	**100%**

In group I, the incidence of nausea – 6%, vomiting – 10% and hypertension- 5%.

In group II, there were no maternal side effect.

In group III, the incidence of diarrhoea – 7% shivering -15% and fever in 4% of cases.

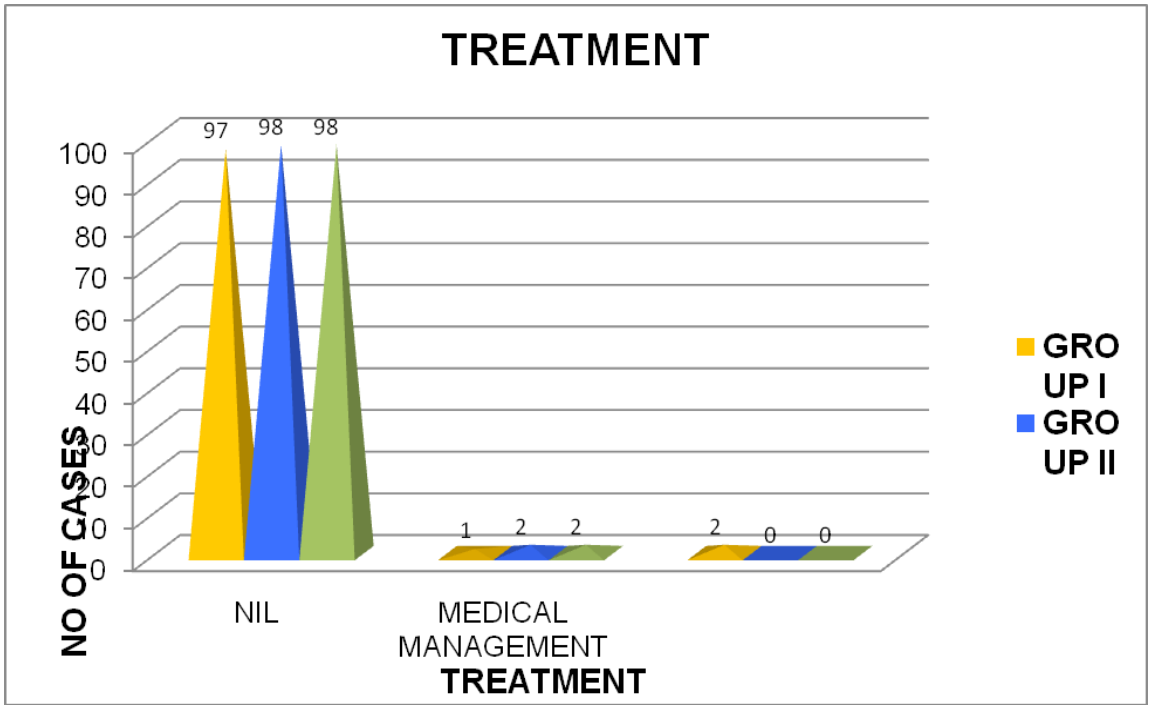

TREATMENT
97
98
98
1
2
2
2
0
0
100
90
80
70
60
50
40
30
20
10
0
NO OF CASES
NIL
MEDICAL MANAGEMENT
TREATMENT
GROUP I
GROUP II

TABLE-13
TREATMENT

Treatment	Methergine	Oxytocin	Misoprostol	Total	
	No.	No.	No.	No.	%
Nil	97	98	98	293	97.7%
Medical management of atonic PPH & blood Transfusion	1	2	2	5	5%
Manual removal of placenta & blood Transfusion	2	0	0	2	.7%
Total	**100**	**100**	**100**	**300**	**100%**

In group I, manual removal of placenta and blood transfusion for retained placenta done in 2% of the cases. One case of mild atonic PPH managed medically and with blood transfusion.

In group II & III, the incidence of mild atonic PPH managed medically and with blood transfusion is 2%

DISCUSSION

DISCUSSION

In present study, 80%of the cases were in the age group of 20-24yr, primigravida constituted about 40%, and more than 90% were booked cases in all the three groups.

In all the three groups, labour natural was about 50-60%, LN with LPI˚ 25-35%, LN with LPII / EPi – 9-15% and outlet forceps constituted 1-4%.

A randomized controlled trial was carried out between Jan 2000 – oct 2000 in the maternity unit of the Social Security Association Maternity & Women Health Teaching Hospital in Ankara, [34]Turkey. 1574 women were grouped into 4. One group receiving misoprostol alone; other group receiving misoprostol and oxytocin 10 iv, third group receiving oxytocin 10iv alone and fourth group receiving oxytocin infusion and methergine 0.2mg im. In their study duration of third stage of labour is misoprostol group – 9.2min and in oxytocin group 8.7min.

In present study, mean duration of third stage of labour in Methergine group was 3 min 15 sec, Oxytocin group – 3 min 29 sec and in Misoprostol group- 4 min 20 sec.

In the Ankara study, blood loss of > 500ml in Misoprostol group – 9%, oxytocin group -7.3% and in oxytocin - methergine combined group - 3.5%. In present study, blood loss of >500ml was 2% in all the three groups. The incidence of additional uterotonics needed in the above study was 5.9% in misoprostol group, 6.7% in the oxytocin group and 1.5% in oxytocin methergine combined group. In present study the incidence of additional uterotonics in Methergine group was 1%, Oxytocin group- 6% and in Misoprostol group -8%.

In the Ankara study the need for postpartum blood transfusion was 3.6% in misoprostol group, 3.2% in oxytocin group and 1.5% in combined oxytocin & methergine group. In present study, the need for blood transfusion was 3% in Methergine group and 2% in both the Oxytocin & Misoprostol groups.

In the above study the incidence of shivering was 11.3% diarrhoea – 3.8% and fever in 4.3% in the misoprostol. In present study the incidence of shivering was noted jn 15%, diarrhea -7% and fever -4% in Misoprostol group.

Trials using oxytocin alone showed reduced rate of manual removal of the placenta where as those using ergot preparations demonstrated increased rates. This trend of slight increase in manual removal of placenta mentioned in the Cochrane meta analysis, was entirely due to the results of the single trial that used ergot iv (Begley, 1990) In present study the incidence of retained placenta requiring manual removal was 2% in methergine group only, not in other groups.

The incidence of increase in nausea, vomiting and increase in blood pressure were all exclusively observed in the trials using ergot preparations (Elbourne, 2002). In present study, the incidence of nausea was 6%, vomiting – 10% and increase in BP in 5% in the methergine group.

Studies undertaken by the WHO favour oxytocin in the active management of third stage of labour because it is more stable when exposed to heat & light compared to ergot preparations, which has to be stored at 2-8·C to retain its potency. This makes oxytocin more useful in settings where storage facilities especially refrigerator may be an issue.

Oxytocin is the first line of choice for prevention of PPH because it is as effective, or more effective than ergot alkoids or prostaglandins and has fewer side effect. (2[35],3). [36]

Oxytocin is preferred for prevention of PPH in all women to ergometrine, because of its similar benefits and reduced adverse effects. In situations where oxytocin or ergometrine are not consistently available & appropriately used during third stage of labour, misoprosrol should be considered for inclusion in the AMSTL protocol.[28]

SUMMARY

SUMMARY

- Routine active management is superior to expectant management in terms of reduction of blood loss, in preventing PPH and other serious complications of third stage of labour.

In present study

- Age group 20-24 yrs constituted 80%
- 40% were primigravida.
- 90% were booked cases and 95% belonged to socio economic status class IV
- Labour natural constituted 50-60% in all the three groups
- Mean duration of third stages of labour in Group I- 3 min 15 sec,
  GroupII – 3min 29 sec
  Group III – 4 min 20 sec.
- Mean blood loss during third stage of labour in
  Group I - 145ml
  Group II - 165ml
  GroupIII. - 178ml

- Incidence of use of other uterotonics in Group I- 1%
  GroupII- 6%
  Group III – 8%.
- Incidence of complications in–
  Group I - 2% of retained placenta,
  1% of mild PPH.
  Group II& III - 2% mild PPH...
- Incidence of postpartum blood transfusion –
  Group I- 3%
  Group II &III -2%
- Side effects of the drugs in
  Group I - Nausea – 6%, Vomiting – 10% &
  Hypertension – 5%.
  Group II – **Nil** maternal side effects.
  Group III – Diarrhoea – 7%, Shivering – 15% & fever -4

CONCLUSION

CONCLUSION

- Predicting who will have PPH based on risk factors is difficult, because two third of women who developed PPH have no risk factors. Therefore all women should be considered as at risk for PPH and Hemorrhage prevention must be incorporated into the care provided during every labour. **Every woman is at risk for PPH**.

- Routine screening to prevent and treat anaemia during pre– conception, antenatal and postpartum period.

- Counsel women on nutrition, focusing on available iron and folic acid rich foods and provide iron and folate supplements during pregnancy.

- Active management of third stage of labour should be made as a routine for each & every labour conducted in an institution. There is need for a Randomized controlled trial of active versus expectant management of the third stage of labour in different clinical settings such as in domiciliary practice in the developing world, where the risk of maternal mortality associated with the third stage of labour is very high.

- When ergometrine is used as a compoment of active management, it is associated with an increase risk of retained placenta & unpleasant side effects like nausea, vomiting and hypertension and has limitations in its use.

- **Oxytocin is the first line of choice for prevention of PPH** because it is more heat & light stable, as effective as or even more effective than ergot alkoids or prostaglandins and has fewer side effects & infact no side effect was noted in this study.

- Misoprostol may be used when other oxytocic agents are not available for the prevention of PPH; it is cost effective, heat & light stable, in tablet form and easy to use, that can control PPH even without a medically trained attendant.

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PROFORMA

PROFORMA

Name: Age: IP No:
Date of Admission: Obstetric Score: G P L A
Date of Delivery: LMP :
Date of Discharge: EDD :
Booked / Unbooked: Socio Economic Status:
Menstrual History :
Marital History :
Obstetric History : 1.
2.
3.
4.
O/E: Anemic / Not anemic
PR: BP: CVS: RS:
Risk Factors :

Labour:

1. Spontaneous 2. Induced 3. Augmented
   a) ARM
   b) Oxytocin
   c) Both

Duration of First Stage: Second stage;

Mode Of Delivery:

a) Spontaneous vaginal Delivery: 1. Labour Natural,
   2. L. N. with LP I°
   3. L.N. with LP II°
b) .Low Midcavity Forceps.
c) Outlet Forceps.

Method Used In Third Stage Management:

Group I - IV methergine 0.2 mg during anterior shoulder delivery.

Group II - IM oxytocin 10 U after delivery of the baby.

Group III - Transrectal Misoprostol 600 micro g after delivery of the

baby

Duration of Third stage: -------min -----sec

Amount of Blood Loss during Third Stage: --------ml

BP 1 min and 5 min after drug administration

Baby Details:

Haemoglobin in grams: a) Before Delivery
b) After Delivery

Complications if any:

Material Side Effect of the Drug:

Treatment of the complications: Blood Transfusion:

ABBREVIATIONS

PPH	-	Post Partum Hemorrhage
L.N	-	Labour Natural
LP I°	-	Lacerated perineum first degree
LP II°	-	Lacerated perineum second degree
Epi	-	Episiotomy
µg/ mcg	-	Microgram
mg	-	Milligram
IU	-	International unit
AMSTL	-	Active Management of Third Stage of Labour
WHO	-	World Health Organization
im	-	Intramuscular
iv	-	intravenous

MASTER CHART