CRITICAL ANALYSIS OF EFFECT OF INTRAUMBILICAL INJECTION OF 20 UNITS OXYTOCIN ON 3RD STAGE OF LABOUR IN COMPARISON WITH INTRAMUSCULAR 10 UNITS OXYTOCIN INJECTION

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INTRODUCTION

Some 5,15, 000 women die each year in childbirth, mostly in developing countries. Severe bleeding in the postpartum period is the single most important cause of maternal deaths worldwide. More than half of all maternal deaths occur within 24 hours of delivery, most commonly from excessive blood loss. It is estimated that some 1,40, 000 women die each year from postpartum haemorrhage

Third stage of labour is the most important part of labour. This is the period from delivery of baby to delivery of placenta. After delivery of baby and cessation of umbilical cord pulsation the placenta separates from uterine wall through the spongy lining of the womb. The placenta separates as a result of capillary hemorrhage and the shearing effect of uterine contraction.

Life threatening complications are common in this stage of labour. They are postpartum hemorrhage and retained placenta and inversion of uterus. Postpartum hemorrhage is responsible for 25% of maternal death. PPH is therefore the most important maternal complication in labour and puerperium (AbouZahr2003). It occurs

in 5% of all deliveries .Retained placenta occurs in 0.1-2%of deliveries. A recent study shows statistically significant increase in postpartum hemorrhage when the placenta was not delivered within 18minutes of delivery of baby. (Magnon2005). Primary PPH occurs unpredictably in low-risk women.(Prendiville 2000)

Active management of labour aims at prevention of complications of the third stage. This includes prophylactic administration of a parenteral oxytocic drug, early clamping of umbilical cord and controlled cord traction.

Recommendations are

1. AMTSL reduces the risk of PPH and should be offered to all women(I-A)
2. Oxytocin(10units) intramuscularly is the preferred medication and route for the prevention of PPH in low risk vaginal deliveries. It should be administered after the delivery of the anterior shoulder.
3. Intravenous infusion of oxytocin 20units in1000ml is an acceptable alternative for AMTSL

Expectant management is the “hands off” policy, where signs of separation are awaited and the placenta allowed to deliver spontaneously or with aid of gravity or nipple stimulation

Intraumbilical injection of oxytocin for the treatment of retained placenta was first described by Mojon and Asdrubali in 1826(Koerting1926).The length of the third stage of labour, and its subsequent complications depends on the length of time it takes for placental separation and the ability of uterine muscle to contract.Principal management of third stage of labour aims at reducing the time of delivery of placenta so minimising serious adverse effects ,such as blood loss and retained placenta. Umbilical vein injection of oxytocin directs the treatment of the placental bed and the uterine wall, resulting in an earlier uterine contraction and placental separation.

The purpose of this study was to find out the effect of intraumbilical injection of oxytocin in comparison with intramuscular oxytocin injection in reducing the blood loss during the third and fourth stages of labour, the length of the third stage of

labour, and the reduction in the incidence of manual removal of retained placenta.

AIMS OF THE STUDY

1. To evaluate the efficacy of intraumbilical injection of oxytocin as a prophylactic oxytocic drug in AMSTL
2. To study the effect of intraumbilical oxytocin in
    - Duration of third stage
    - Blood loss of third stage
    - Complication of third stage
    - Effects on the mother
3. Comparison of 10 units oxtocin Intramuscular injection with 20 units oxytocin in 20 ml normal saline intraumbilical n injection in AMSTL.

REVIEW OF LITERATURE

Active management of labour

Active management of third stage of labour aims at prevention of postpartum hemorrhage.

(1) Prendville et al, 2002

Routine management was shown to be superior to expectant management in that there was a statistically significant reduction in the incidence of moderate hemorrhage of 500-1000ml,severe hemorrhage over 1000ml,postpartum hemoglobin of less than 9gms/dl, postnatal blood transfusion the need for therapeutic oxytocics and the third stage lasting more than 20minutes.Women were more satisfied in the third stage if they had active management. These findings were confirmed in general population and also in women considered to be at low risk of third stage complication.

(2) Edgardo abalos and associates, 2006.

Compared with expectant management, active management of the third stage of labour is associated with a lower incidence of postpartum haemorrhage, less blood loss and reduced risk of blood transfusion.

OXYTOCIN AND ITS EFFECTS

(3) Gulmezoglu et al (2002)

Oxytocin is closely related to antidiuretic hormone and may lead to fluid retention and water intoxication. These are unusual side effects and would not be expected in prophylactic low doses. However caution is required in women who have received large doses of oxytocin for labour augmentation, especially when given with large volume electrolyte free intravenous fluids or where there is another riskfactor for fluid retention such as pre-eclampsia exists(Brucker2001).

(4) Secher 1998:

Intravenous bolus injections of 10units oxytocin injection causes transient but profound hypotension due to peripheral vasodilatation in some women.

(5) NICE 2001

In normotensive women this is followed by an increase in cardiac output but in women with preexisting hypotension (such as in cases of postpartum hemorrhage) or with a known cardiac abnormality cardiac arrest and maternal death has been reported.

INTRAUMBILICAL INJECTION OF OXYTOCIN:

(6) Sataq Rafique et al 2009

Active management of third stage gave very good results in this study. Use of an injection of saline 100ml and oxytocin5u in umbilical vein to prevent the retention of placenta by facilitating the placental separation. The incidence of PPH in this study was 3.9%.

TIMING OF CORD CLAMPING:

(7) McDonald&Middleton 2008

This is the study of active management of the third stage of labour : difference between delayed and early cord clamping.

A 2008 Cochrane review compared the effect of maternal neonatal outcome on early cord clamping. The results showed no difference in the incidence of PPH but an increased of neonatal jaundice requiring phototherapy, higher newborn haemoglobin levels upto 6 months of age, and higher ferritin levels at 6months of age after late clamping.

CONTROLLED CORD TRACTION:

(8)M.L.McCornick-et-al 2002

Although there are theoretical complications of active management of labour (retained placenta, inversion of uterus, avulsion of the cord), the use of active management of labour did not increase the incidence of retained placenta and there were no reported cases of uterine inversion or cord avulsion in the study reviewed here. To avoid these complications, however tension should not be maintained on the cord if the placenta does not descend during the 30-40second of controlled tension during a

contraction ; the procedure should be repeated with the onset of uterine contraction. In addition counter pressure on the lower segment of the uterus(towards woman's head) should always be applied to the uterus when tension is placed on the cord.

INTRAUMBLICAL INJECTION OF OXYTOCIN IN RETAINED PLACENTA:

(9)Neebha Ojha and associates(2007)

Active management of third stage by oxytocin – Umblical vein Vs Intramuscular use: There was significant blood loss in the intraumblical group as compared to intramuscular group. There was no difference in the duration of third stage of labour between the two groups. Intraumblical oxytocin is technically more difficult to administer.

10) Tammy SGerstenfeld and associates (2001)

Rectal Misoprostol Vs Intravenous oxytocin for the prevention of postpartum haemorrhage after vaginal delivery: Rectal misoprostal was no more effective than intravenous oxytocin in preventing postpartum haemorrhage.

11) Athavale RD, et al 1991

The blood loss within the first hour of delivery (4th stage) is an important precipitating factor for puerperal anaemia. Third stage of labour is generally managed by observation until separation and expulsion of the placenta, which is followed by administration of methylergometrine. Delayed separation eventually leads to more bleeding. However, if methylergometrine is injected at the time of the delivery of anterior shoulder, then the expulsion time decreases without the theoretical risk of retained placenta.

12) Golan *et al* 1983, proposed that the injection of intra-umbilical oxytocin leads to a high concentration of oxytocin at the uterine wall and may be the cause of the rapid placental expulsion. Intra-umbilical oxytocin is therefore, a useful alternative in patients where methylergometrine is contraindicated or in cases where intravenous fluids need to be restricted.

13) Gungorduuk K,et al 2010.

In this prospective, randomized, double-blind trial, 412 women undergoing vaginal delivery who did not have risk factors

for postpartum hemorrhage were randomly allocated to receive either 20 international units oxytocin diluted with 26 ml saline (n=207) or 30 ml saline (n=205) by intraumbilical vein injection. Active management of the third stage of labor (prophylactic injection of 10 international units oxytocin within 2 minutes of birth, early clamping of the umbilical cord, and controlled cord traction) was used in both groups. The primary outcome was mean blood loss during the third and fourth stages of labor. The mean estimated blood loss was significantly lower in women treated with oxytocin compared with women in the placebo group (195.3+/-81.0 mL compared with 288.3+/-134.1 mL, respectively; P<.001). The third stage of labor was significantly shorter in the oxytocin group than in the placebo group (4.5+/-1.6 minutes compared with 7.9+/-3.4 minutes, respectively; P<.001). The percentages of placentas remaining undelivered beyond 15 minutes were 0% in the oxytocin group and 4.4% in the placebo group (P=.002).

They concluded as use of intraumbilical injection of oxytocin with the active management of the third stage of labor significantly reduced postpartum blood loss and the duration of the third stage.

(14)Nada abud-alhur Al-Ebrahimi, 2006

All solutions were given by needle injection method. The use of intraumblical injection is a simple method in reducing the need for manual removal of placenta and blood loss and all their morbid complications. So it is highly recommended in carefully selected cases. The addition of intraumbilical vein syntocinon 10 units resulted in marked reduction in amount of blood loss, duration of third stage and incidence of retained placenta in comparison to intravenous 5 IU oxytocin+0.5 mg ergometrine alone.

(15)Dahia et al1995

In this study the effect of intraumbilical oxytocin on duration and amount of blood loss in third stage of labour was studied. Pregnant women were randomized into 2 groups of 50 each. Group I was managed actively with 10 units of oxytocin diluted in 20 ml saline given through umbilical vein immediately after cord claming and Group II managed traditionally with oxytocin infusion 10 units in 250 ml of dextrose saline at rate of 125 ml/hr given after delivery of baby. In the study group there was a statistically significant decrease in duration of third stage of labour <1.48 min Vs 3.27

min>, fall in haemoglobin <1.2 g/dl vs 1.96 g/dl> and fall in haematocrit <3.88% Vs 7.20%<. It was concluded that intraumbilical oxytocin appears to be a useful, safe and practical method for active management of third stage However, the amount of blood loss during third stage and postpartum decrease in haemoglobin and haematocrit values were statistically significantly less in study group as compared to control group

Five hundred parturient women with low risk singleton term pregnancy were enrolled in the study. Two hundred and fifty women each were included in the study and control group after randomization.

(16) Guillermo Carroli et al, 1998

In their study, they compared the out come of the intraumbilical saline solution + oxytocin and saline solution alone and expectant management. The mean blood loss was 527 ml, 394 ml and 438 ml respectively. Fall in haemoglobin was 1.2, 1.1 and 1.1 respectively. The intraumbilical oxytocin injection is effective for retained placenta but not for active management.

BLOOD COLLECTION BRASSS V DRAPE

17. B.S. Kodkany et al 2009.

Results of the three studies conducted at JNMC, Belgaum, Karnataka, India, strongly suggest that the BRASS V drape is a accurate and practical tool to measure blood loss occurring in the third stage of labour. The critical component of their trial was the development of the specially designed low cost “calibrated” plastic collection drape” that would objectively measure the amount of blood collected in the immediate post partum period . While among women with little blood loss, the ranges of blood loss were similar in both visual and drape assessment group.

ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR

Active management of third stage include

- Prophylactic oxytocics
- Early cord clamping
- Controlled cord traction for delivery of placenta
- Uterine massage

PROPHYLACTIC OXYTOCICS

The following agents are used for active management of third stage of labour

- Oxytocin
- Methergin
- Syntometrine
- Misoprostol

OXYTOCIN:

Oxytocin is a naturally occurring uterotonic first reported in 1953 by Du Vigneaud. The effect of oxytocin is to increase the frequency and amplitude of contractions. It has a half life of 3-5minutes.

PHARMACOLOGY:

Oxytocin is a cyclic nanopeptide. It is secreted by the posterior pituitary. It causes contraction of uterus, the effect increasing as pregnancy advances due to increase of oxytocin receptors near term.

It is chemically designated as Cys-Tyr-Ile-Gln-Asn-Cys-Asn-Cys-Pro-Leu-Gly-NH2 cyclic disulphide and a molecular weight of 1007.2.

ACTIONS:

- Uterus-oxytocin increases force and frequency of uterine contractions.Increased contractility is restricted to the fundus and body.
- Breast –oxytocin contracts myoepithelium of mammary alveoli and forces milk into the milk sinusoids.-milk ejection reflex.
- CVS-higher doses causes fall in BP ,reflex tachycardia and flushing. The umbilical vessel are markedly constricted and may help in their closure.

- Kidney-high doses exerts an antidiuretic action.Pulmonary oedema can occur if large amounts of IVfluids and oxytocin are infused together.

PHARMACOKINETICS:

Oxytocin being a peptide, undergoes enzymatic destruction in the gastrointestinal tract but rapidly absorbed from the mucous membranes when administered buccally or intranasally. It is metabolized in the liver and kidneys. Only small amounts are excreted unchanged in the urine. Plasma t1/2 averages 10minutes.

ROUTE OF ADMINISTRATION:

Oxytocin can be administered intravenously or intramuscularly, but not orally.

Oxytocin causes fluid retention and water intoxication. Intravenous bolus dose causes profound hypotension and cardiac arrest in women with hypotension. Intraumbilical injection has fewer side effects.

Oxytocin has fewer side effects compared to ergometrine.

Refrigeration is recommended for its storage.

INDICATIONS:

- Active management of third stage of labour.
- Prevention and treatment of postpartum hemorrhage.
- Induction of labour
- Uterine inertia
- Augmentation ol labour
- Midtrimester abortion

ADVERSE EFFECTS:

1. Injudicious use causes strong uterine contractions forcing fetus through an incompletely dilated birth canal causing maternal and fetal soft tissue injury, rupture of uterus, foetal asphyxia and death.
2. Water intoxication especially in toxemia and renal insufficiency.

TIMING OF PROPHYLACTIC OXYTOCICS:

The oxytocics are given at the time of delivery of anterior shoulder. However twin delivery has to be excluded as it may prove dangerous to the second of the twin.

SIGNS OF PLACENTAL SEPARATION:

- Uterus should be globular and firmer.
- Sudden gush of fresh blood from vagina
- Uterus rises in the abdomen because the placenta having separated, passes down into the lower uterine segment where its bulk pushes the uterus upwards.
- Extravulval lengthening of cord.

EARLY CORD CLAMPING:

The umbilical cord is clamped close to the maternal side of the cord. The baby is resuscitated, oropharyngeal clearing of the baby done this may take 30 seconds for clamping the cord after delivery of the baby .The duration third stage is reduced by early cord clamping. A delay of cord clamping of as little as 30seconds

while holding the baby below the level of placenta may therefore be an advantage.

CONTROLLED CORD TRACTION:

1. Clamp the cord close to the perineum (once pulsation stops in a healthy newborn) and hold in one hand.

2. Place the other hand just above the woman's pubic bone and stabilize the uterus by applying counter-pressure during controlled cord traction.

3. Keep slight tension on the cord and await a strong uterine contraction (2–3 minutes).

4. With the strong uterine contraction, encourage the mother to push and very gently pull downward on the cord to deliver the placenta. Continue to apply counter-pressure to the uterus.

5. If the placenta does not descend during 30–40 seconds of controlled cord traction, do not continue to pull on the cord: Gently hold the cord and wait until the uterus is well contracted again. With the next contraction, repeat controlled cord traction with counter-pressure.

6. As the placenta delivers, hold the placenta in two hands and gently turn it until the membranes are twisted. Slowly pull to complete the delivery.

7. If the membranes tear, gently examine the upper vagina and cervix wearing sterile/disinfected gloves and use a sponge forceps to remove any pieces of membrane that are present.

8. Look carefully at the placenta to be sure none of it is missing. If a portion of the maternal surface is missing or there are torn membranes with vessels, suspect retained placental fragments and take appropriate action

After placental delivery uterine massage can be given to prevent PPH. Studies show that controlled cord traction was associated with a lower mean blood loss and a shorter third stage. However one study showed 3%incidence of umbilical cord rupture.

COMPLICATIONS OF THIRD STAGE:

- Postpartum hemorrhage
- Retained placenta
- Inversion uterus

POSTPARTUM HEMORRHAGE:

The diagnosis of PPH is a subjective clinical assessment that includes any blood loss that threatens the woman's hemodynamic stability.

Primary PPH is defined as blood loss of more than 500ml from the genital tract at vaginal delivery, 1000mlat caesarean delivery or 1500ml at caesarean hysterectomy.

Alternative definitions include a 10% drop in haematocrit, or the need for blood transfusion in the first 24 hours of delivery.

PPH can be subdivided into third stage hemorrhage when bleeding occurs before the expulsion of the placenta, and true PPH which occurs after the expulsion of the placenta.

Secondary PPH is the excessive blood loss after 24 hours but within 6 weeks of delivery.

A lower value of 300ml as cutoff has been suggested for Asian women because of their lower body mass index.

CAUSES OF POSTPARTUM HEMORRHAGE:

Uterine atony is the commonest, complicating 1in20 pregnancies and accounting for 80-90% of cases.

Aetiological factors can be divided into

- Tone-uterine atony
- Tissue-retained placenta, blood clots
- Trauma-genital tract injury
- Thrombin-disseminated intravascular coagulation

Risk factors:

- Multiparity
- H/o PPH
- Multiple pregnancy
- Placenta praevia
- Abruption placenta
- Prolonged labour

- Precipitate labour
- Chorioamnionitis
- General anaesthesia
- Polyhydramnios
- Intrauterine death
- Uterine fibroids

Signs and symptoms of PPH:

Blood loss% of blood volume	Systolic blood pressure mm of Hg	Signs and symptoms
10-15	Normal	Postural hypotension and mild tachycardia
15-30	Slight fall	Tachycardia, thirst, weakness
30-40	60-80	Pallor, oliguria, confusion, Tachypnea restlessness
40+	40-60	Anuria,air hunger , coma, death

PREVENTION OF PPH:

- Proper antenatal care
- antepartum correction of anemia
- active management of third stage of labour which aims at prevention and decrease of blood loss. The primary goal was to assist placental delivery, thereby allowing uterus to contract and reduce blood flow across the myometrium.(Prendiville and colleagues)
- skilled attendants should offer uterotonics to prevent PPH.
- careful postpartum observation of the patient
- management of patients at risk for PPH in an institution where all facilities for management of PPH are available

RETAINED PLACENTA

Retained placenta is defined in various ways. The most common definition is retention of the placenta in utero for more than 30 minutes. This is an arbitrary definition, and management is greatly influenced by the clinical assessment of whether significant

bleeding is occurring. This bleeding may be visible or may manifest only by the increasing size of the uterus. In the absence of any evidence of placental detachment, consider the diagnosis of complete placenta accreta or a variant. This condition may be present with bleeding if only a portion of the placenta is abnormally implanted

- The definitions of retained placenta range from 15-60 minutes without placental delivery but are most commonly 20-30 minutes. Injections into the cord vein have used isotonic sodium chloride solution (normal saline), oxytocin and saline, prostaglandin and saline, misoprostol and saline, and dextran 70.

Uterine inversion

This condition is very rare. The risk of uterine inversion is increased in abnormalities of placentation, such as accreta, and is more likely with fundal cord insertions and any condition that predisposes patients to uterine atony and prolapse. Cord traction should never occur without countertraction or in the absence of uterine contraction. Leave the placenta attached, and focus

management on maternal resuscitation and rapid return of the uterus to the abdominal cavity.

The fingers are formed into a single cone-shaped unit and placed at the most dependent portion of the protruding mass, which represents the inverted uterine fundus. Gentle upward pressure is exerted in the axis of the birth canal with the fingers and thumb together to minimize the risk of uterine perforation. The action has been likened to that of placing the fingers at the toe of an inside-out sock and pushing to make the sock right-side out. Following uterine replacement vigorous massage and uterotonic administration should undertaken.

Manual removal of the placenta may be performed when the mother's vital signs are stable unless concern exists regarding abnormal placentation. Uterine relaxants, such as nitroglycerin, may be helpful.

MATERIALS AND METHODS

In this randomized comparative study 200 patients attending Government Rajaji Hospital Madurai for confinement during the period from November 2009 to October 2010 were recruited. They were divided into 2 groups.

GROUP-A - 100 patients received prophylactic 10 units IM Oxytocin inj. at the time of delivery of anterior shoulder.

GROUP-B - 100 patients received Prophylactic 20units Oxytocin in 20ml Normal saline intraumbilically after early cord clamping.

INCLUSION CRITERIA:

- Gestational age between 37-42weeks
- Singleton pregnancy
- Live fetus
- Cephalic presentation
- Parity between 1 and 5
- Maternal age less than 35 years
- Vaginal birth

EXCLUSION CRITERIA:

- placental abruption
- placenta praevia
- history of any bleeding during pregnancy
- history of curette
- previous caesarean section or any uterine scar
- history of postpartum hemorrhage
- polyhydramnios
- signs and symptoms of maternal infections
- coagulation defects
- known uterine anomalies
- hemoglobin concentration less than 8 gms
- history of any medication during pregnancy
- prolongation of first stage of labour >15 hours

METHODS

GROUP-A

1OO patients were managed with 10 units oxytocin injection intramuscularly at the time of delivery of anterior shoulder.

GROUP-B

100 patients were given 20units oxytocin diluted in 20 ml normal saline intraumbilical after early cord clamping

Blood loss was measured by a Blood collection Drape which was placed under the buttocks of the patient after the delivery of the baby so that the amniotic fluid is not included.This drape is left in place for one hour after delivery.

Blood soaked swabs were weighed and the known weight subtracted.

Other uterotonics were used if the blood loss was more or when the uterus was flabby.

Depending on the hemodynamic status of the patient and haemoglobin status in postnatal period blood transfusion or iron sucrose injection were given.

Side effects were asked for 24hours after delivery.

In each case following parameters were monitored

1. Hemoglobin before &after delivery
2. Vitals before and after delivery
3. Duration of active stage+second stage
4. Labour-spontaneous or induced
5. Labour accelerated or not
6. Mode of delivery whether

   labour natural or labour natural with lacerated perineum or labour natural with episiotomy or outlet forceps with episiotomy
7. Birth weight
8. Amount of blood loss
9. Duration of third stage

10. Need for blood transfusion
11. Need for iron sucrose
12. Need for other oxytocics
13. Presence of PPH or retained placenta requiring manual removal
14. Side effects of drugs

MEASUREMENT OF BLOOD LOSS

- The amount of blood loss is calculated by the BRASSE V drape.
- It is a conical collection bag made of plastic which has got calibrations at the bottom to measure the blood loss.
- It is reusable.
- It is inserted under the patient’s buttocks after the baby is delivered and cord is clamped and cut .
- After collecting all the data, the data were tabulated and analysed.

RESULTS

Profile of cases studied

Table:1 Age distribution

Agein years	GroupA No	%	GroupB No	%
20-24	70	70	68	68
25-29	25	25	28	28
30&above	5	5	4	4
Total	100		100	
Mean	23.32		23.49	
S.D	2.947		3.164	
P	p = 0.695 Not significant			

Comparing the age distribution in both groups, majority of the patients were between 20-29 years 95% in Group A and 96% in Group B. Elderly group contributes to minority of the population (i.e) 5% in Group A and 4% in group B.

There is no significant difference in the mean age of the cases in both the groups.

Table:2 Gravidity distribution

Parity	**Group A** **No.**	**%**	**Group B** **No.**	**%**
Primi	65	65	67	67
Multi	35	35	33	33
Total	100		100	
P	p = 0.881 Not significant			

In this study primigravidae were more compared to multigravidae.

- In Group A-65% primi 35% multi
- Group B-67%primi 33%multi

The parity of the two groups does not have statistically significant difference.

Table – 3 Type of labour

Type of labour	Group A No.	%	Group B No.	%
Spontaneous	52	52	45	45
Gel Induced	17	17	14	14
Augmentation	31	31	41	41
Total	100		100	
P	P =0.646 Not significant			

The type of labour was compared in both the groups. Majority of the patients in the groups had spontaneous onset of labour.(Group A 52% Group B 45%)

Labour was induced in17% in Group A and 14% in Group B

The type of labour did not differ significantly in both groups.

Table 4: Method of delivery

Mode of delivery	**Group A No.**	**%**	**Group B**	**%**
LN	2	2	3	3
LN withLP	2	2	--	--
LN with Epi	87	87	83	83
Outlet	9	9	14	14
Total	100		100	

In comparing the mode of delivery in both the groups, maximum number of patients were delivered by Labour natural with episiotomy 87% in Group A and 83% in Group B. 9% in Group A and 14% in Group B. were delivered by outlet forceps.

Table 5 - Duration of active stage +II stage of labor

Duration in hrs	**Group A** **No.**	**%**	**Group B** **No.**	**%**
1-2hrs50mts	58	58	54	54
3-4hrs50mts	33	33	35	35
5hrs and more	9	9	11	11
Total	100		100	
Mean	2.72		2.97	
S.D.	1.38		1.39	
P value	p = 0.212 Not significant			

In comparing the active stage + third stage duration majority had duration less than 3 hours 58% in Group A and 54% in Group B.

Only 9% in Group A and 11% in Group B had duration more than 5 hours.

The mean duration of labour in Group A is 2.72 hrs and 2.96hrs in Group B.

Comparison of outcome parameters in the two groups

Table 6 : Changes in Haemoglobin

	GroupA At admission	**After delivery**	**Group B At Admission**	**After delivery**
Hb in gms	9.385	8.571	8.975	8.638
S.D	0.748	0.869	0.625	0.639
P value	< 0.001 Significant			

Hemoglobin level at admission is compared to the hemoglobin after delivery in both the groups.

Statistically there was significant difference in the changes in hemoglobin in the two groups.

Table:7 Duration of third stage

Duration in mts.	Group A No.	%	Group B	%
< 2	10	10	54	54
3-4	15	15	33	33
5-6	37	37	10	10
7-8	16	16	3	3
9-10	14	14	-	-
11-14	4	4	-	-
>15	4	4	-	-
Mean	6.52		2.82	
S.D.	3.963		1.513	
P value	p< 0.001 Significant			

10% had third stage duration upto2minutes in Group A and 54% in Group B. 68% had third stage duration of 3-8minutes in Group A and 46% in Group B.

4% had more than 15 minutes in Group A and none of the patients in Group B exceeded 15 minutes. The mean duration of third stage in Group A is 6.52 minutes and 2.82 minutes in Group B.

There is statistically significant difference in the duration of third stage between both groups.

Table8 : Amount of Blood Loss:

Blood loss in ml	**Group A No.**	**%**	**GroupB No.**	**%**
0-50	6	6	25	25
51-199	34	34	43	43
200-349	39	39	23	23
350-499	14	14	6	6
>500	7	7	3	3
Mean	241.65		155.90	
S.D.	151.82		122.037	
P	p< 0.001 Significant			

In Group A 40% had blood loss less than 200ml.

In Group B 68% had blood loss less than 200ml.

7% of the patients had blood loss of more than 500ml in GroupA and 3% in Group B.

The mean blood loss for GroupA is 241.65ml and 155.90ml for Group B.

The mean blood loss for Group A is lower than that of Group B and this difference is statistically significant.

Table 9: Use of Other Uterotonics

Drugs	**Group A** **No.**	**%**	**Group B**	**%**
Methergine	31	31	23	23
Methergine +synto.drip	11	11	6	6
Methergine +Synto.drip+Prostadin	5	5	3	3
P value	P = 0.416 Not significant			

31% needed methergin in Group A and 23% in Group B.

5% needed prostadin also in Group A and 3% in Group B.

The need for additional uterotonic is not statistically significant between the two groups.

Table 10: Need for Blood transfusion and Iron sucrose

	Group-A		**Group-B**	
	No.	**%**	**No.**	**%**
Blood transfusion	3	3	1	1
Iron Sucrose	11	11	3	3
P	p = 0.628 Not significant			

The need for postnatal blood transfusion for Group A is 3% and 1% for Group B.

Iron sucrose was need for 11% in Group A and 3% in Group B.

Table 11:Postpartum complications

	GroupA **No.**	**%**	**GroupB** **No.**	**%**
PPH	4	4	2	2
Retained placenta	1	1	0	0
p	P = 0.696 Not significant			

The incidence of PPH is 4% in Group A and 2% in Group B.

The incidence of Retained placenta is 1% in Group A and 0% in Group B.

Table 12 : Maternal effects 24 hours after delivery

Side effects	**Group A** **No.**	**%**	**Group B** **No.**	**%**
Nausea	1	1	-	-
Vomiting	1	1	1	1
Headache	1	1	1	1
Surgical evacuation	-	-	-	-
Fever	2	2	2	2
Abdominal pain	27	27	29	29
%	32	32	33	33

Side effects in Group A like nausea and vomiting was 2% in Group A and 1% in Group B

Fever was present in 2% in Both the groups.

Abdominal pain was present in 27% in Group A and 29% in Group B.

DISCUSSION

Active management of third stage is one of the most important steps in prevention of postpartum hemorrhage.

This study was conducted in the Department of Obstetrics and Gynaecology, Government Rajaji Hospital, Madurai to assess the effect of intraumblical injection of oxytocin on the third stage of labour in comparison with intramuscular oxytocin injection.

In this 100 patients were given 10units oxytocin intramuscularly at delivery of anterior shoulder.

Another 100 patients were given 20units oxytocin diluted in 20ml Normal saline intraumbilically soon after the cord clamping.

Discussion of profile of cases studied:

Age Group and Patient Selection

In our study, age group of patients studied varied from 20 to 35years

- 90% of Group A were between 20-29years.
- 96% of Group B were between 20-29 years.

This is similar to the study by Department of Obstetrics and Gynaecology,K.E.M.Hospital, Bombay which showed that the mean age of control and study group was 29.3yrs and 29.1yrs respectively.

Parity

In our study Primigravida were more in both compared to Multigravida. All were Term Singleton Low risk pregnancies.

- In Group A -65%-primi 35%-multi
- In Group B -67%-primi 33%-multi
- This is similar to the study by the Department of Obstetrics and Gynaecology and diagnostic imaging, Mississauga, 0ntario which showed 40% multi and 60% primi in control group and 45% multi and 55% primi in study group.

Type of labour

In our study majority of patients in both groups had spontaneous onset of labour.

- Group A -52% spontaneous onset of labour.

- Group B-45% spontaneous onset of labour.

Augmentation with oxytocin is done in

- 31% in Group A
- 41% in Group B
- This is similar to the study by Department of Obstetrics and Gynaecology , Maternity Port Royal Hospital,Paris, France which showed that 60% had spontaneous onset of labour in study group and 57% in control group.

Method of delivery

In our study maximum number of patients were delivered by labour natural with episiotomy 87% in Group A , 83% in Group B.

Instrumentation was 9% in Group A and 14% in Group B.

This is similar to the study by Erzincan Military Hospital , Angers, France .90% were delivered by labour naturale in study group and 95% of the patients in control group.

Duration of active stage+third stageof labour

91% of patients had duration of active+ third stage less than 5hoursin Group A and 89% in Group B.

None of the patients had duration of labour more than 8hrs .

This is comparable to the study by Guillermo carroli, Rosario, Argentina which showed that all patients had duration of labour less than 15hrs

Comparison of outcome parameters in both groups

Changes in hemoglobin

Haemoglobin estimation was done at admission of the patient and repeated 24-48 hrs after delivery.

Mean haemoglobin level of Group A

- At admission is 9.292gms%
- After delivery is 8.571gms%

Mean haemoglobin level of Group B

- At admission is 8.975gms%

- After delivery is 8.638gms%

There is a statistically significant difference ($p<0.001$)in the changes of hemoglobin in the 2 groups.

This is comparable to the study by Department of Obstetrics and Gynaecology,Atlanta medical centre, Atlanta , Georgia which showed

Mean haemoglobin level of control group

- At admission is 11.7gms%
- After delivery is 9.9gms%

Mean haemoglobin level of study group

- At admission is 12.1gms%
- After delivery is 10.8gms%

Duration of third stage of labour

In our study in Group A 62% had duration of third stage upto 6minutes. In Group B 97% had third stage duration upto

6minutes. There is significant reduction in the duration of third stage in the patients given oxytocin intraumblically.

The mean duration of third stage of labour is shorter in intraumblical group (6.52+/-3.9 compared to 2.82+/-1.8)

This result is similar to the study done by Nada abud-alhur Al-Ebrahimi Department of Obstetrics and Gynaecology United Arab Emirates, where the mean duration of third stage was 2.59 minutes in the study group and 7.67 minutes in the control group ($p<0.001$).

Blood loss

In our study 40% of Intramuscular group had blood loss less than 200ml whereas 68% of intraumblical group had blood less than 200ml

Mean blood loss of intramuscular group-241.65 ml

Mean blood loss of intraumblical group -155.90 ml

This result is comparable to the study done by Gungorduuk K, et al,

Mardin Women and Children Hospital, Mardin, Turkey, which showed mean estimated blood loss was significantly lower in women treated with oxytocin compared with women in the placebo group (195.3+/-81.0 mL compared with 288.3+/-134.1 mL, respectively; P<.001).

The incidence of PPH (i.e) more than 500ml in Group A is 4%and in Group B it is 2%.

Use of other uterotonics

47% of Group A needed additional uterotonics and only 32% needed additional uterotonics in Group B.

This result is comparable to the study done by Gazvani,Liverpool Women's Hospital, U.K., which showed use of other uterotonics in 40% in control group and 35% in study group.

Postpartum complications

Retained placenta was present in 1% of the cases in Group A and 0% in Group B

This result is comparable to the study done by Tehseen et al Department of Obstetrics and Gynaecology, Sargodha which showed an incidence of 1.2% of retained placenta in control group only

Massive PPH requiring Blood transfusion was 3% in intramuscular group and 1% in intraumblical group. Iron sucrose was used in 11% of the cases in Group A and 3% of the cases in Group B.

This comparable to the study by Edgardo abalos et al which reduced risk of blood transfusion with intraumblical oxytocin injection(4% vs 2%)

Maternal effects 24 hrs after delivery

Nausea, vomiting and headache was found in 3% in Group A and in 2% in Group B.

Surgical evacuation for retained placenta was not needed in both the groups.

Fever was present in 2% of the cases in both the groups.

This is comparable to the study done by Nada abud-alhur Al-Ebrahimi, Department of Obstetrics and Gyynaecology, Arab Medical College which showed a higher incidence of increased blood pressure following delivery in the active management group (RR, 3.46; 95% CI, 1.68-7.09). This group also had a higher incidence of nausea (RR, 1.83; 95% CI, 1.51-2.23) and vomiting (RR, 2.19; 95% CI, 1.68-2.86). The slight trend in manual removal of the placenta and the significant increases in the rates of hypertension, nausea, and vomiting appear to be a function of the chosen uterotonic. These effects are noted with ergot preparations and not with oxytocin.

Abdominal pain was present in 27% in Group A and 29% in Group B

This result is comparable to the study done by Tehseen et al , Department of Obstetrics and Gynaecology, Sargodha . Their study showed that abdominal pain was experienced in study group but the difference was not found statistically significant.

SUMMARY

This study was conducted in Department of Obstetrics and Gynaecology, Government Rajaji Hospital, Madurai. Two hundred patients under this study were admitted in labour ward and after considering the inclusion criteria and exclusion criteria were divided into Group A and Group B.

Group A patients were given Oxytocin Intramuscularly

Group B patients were given Oxytocin intraumbilically

Results

- Age:95% of the patients were between 20-29yrs in Group A and 96% in Group B
- Parity : In Group A 65% were Primi and 35% were Multi. In Group B 67% were Primi and 33% were multi.
- Type of labour : In group A 52% had spontaneous onset of labour and 17% had induced labour. In group B, 45% had spontaneous onset of labour and 14% had induced labour.
- Method of delivery : 87% in Group A and 83% in Group B were delivered by labour naturale with episiotomy. 9% in group A and 14\% in group B were delivered by outlet forceps.

- Fall in Hb level is significantly less in group B which is statistically significant
- Duration of 3rd stage : The mean duration of third stage in Group A is 6.52 minutes and 2.82 min in Group B
- Amount of blood loss : The mean blood loss was 241.65 ml in group A, and 155.9 ml in group B
- The user of other uterotonics : Methergine was needed in 31% in group A and 23% in group B. Prostadin was needed in 5% in group A and 3% in group B.
- Blood transfusion and Iron sucrose : The need for postnatal blood transfusion for group A is 3% and for group B it is 1%, Iron sucrose was needed for 11% in group A and 3% in groupB.
- Postpartum complications : The incidence of PPH is 4% in group A and 2% in group B. The incidence of retained placenta is 1% in group A and 0% in group B.
- Maternal effects 24 hrs after delivery : Nausea and vomiting was present in 2% in group A and 1% in group B. Fever was present in 2% in both the groups. Abdominal pain was present in 27% in group A and 29% in group B. Surgical evacuation of retained placental bits was 0% in both groups.

CONCLUSION

- Intraumbilical oxytocin is very effective in the active management of third stage.

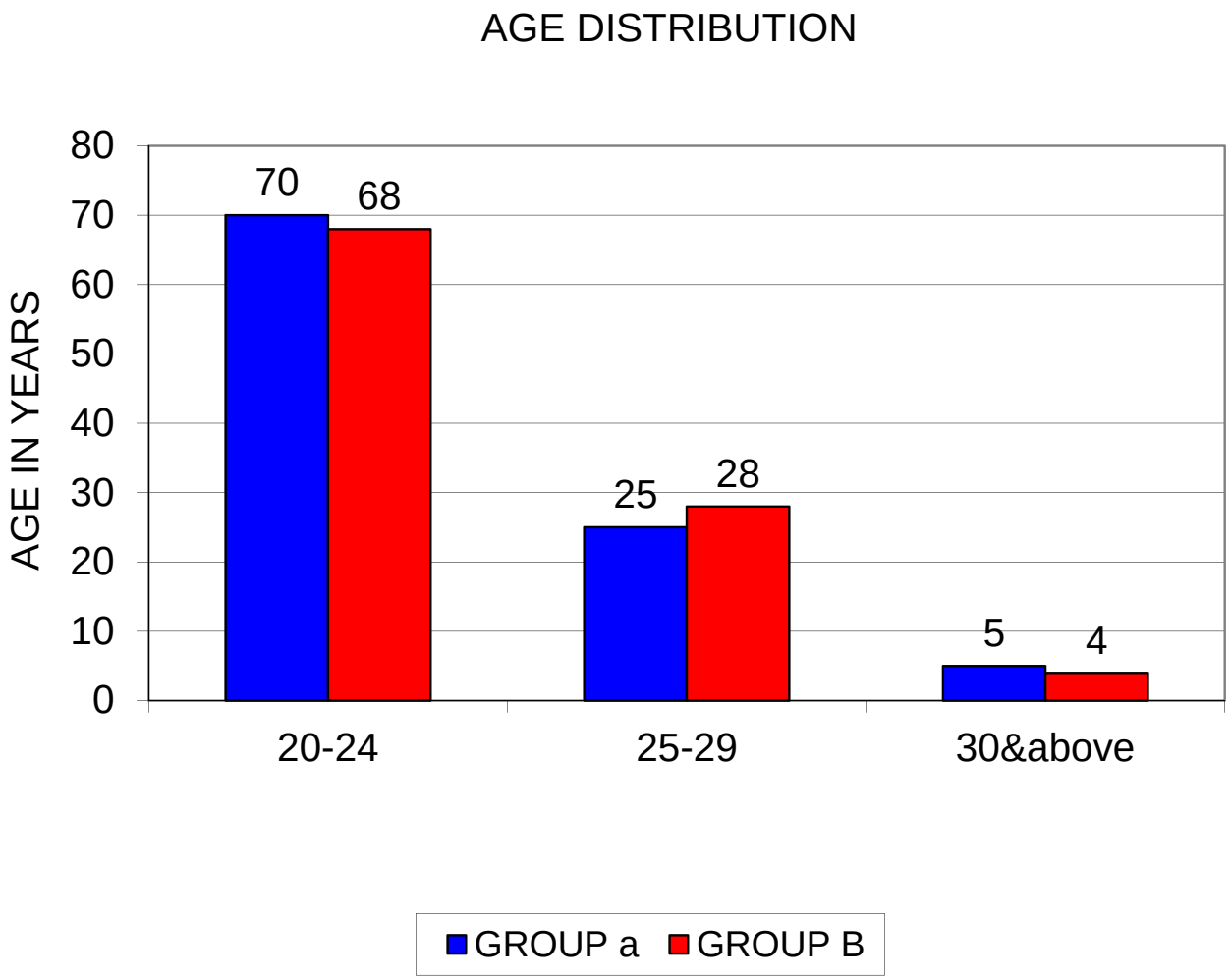
1. It reduces the blood loss and duration of third stage of labour. In intra umbilical group 91% of patients had blood loss less than 350 ml

2. The mean duration of third stage was 2.82 minutes in intra umbilical group

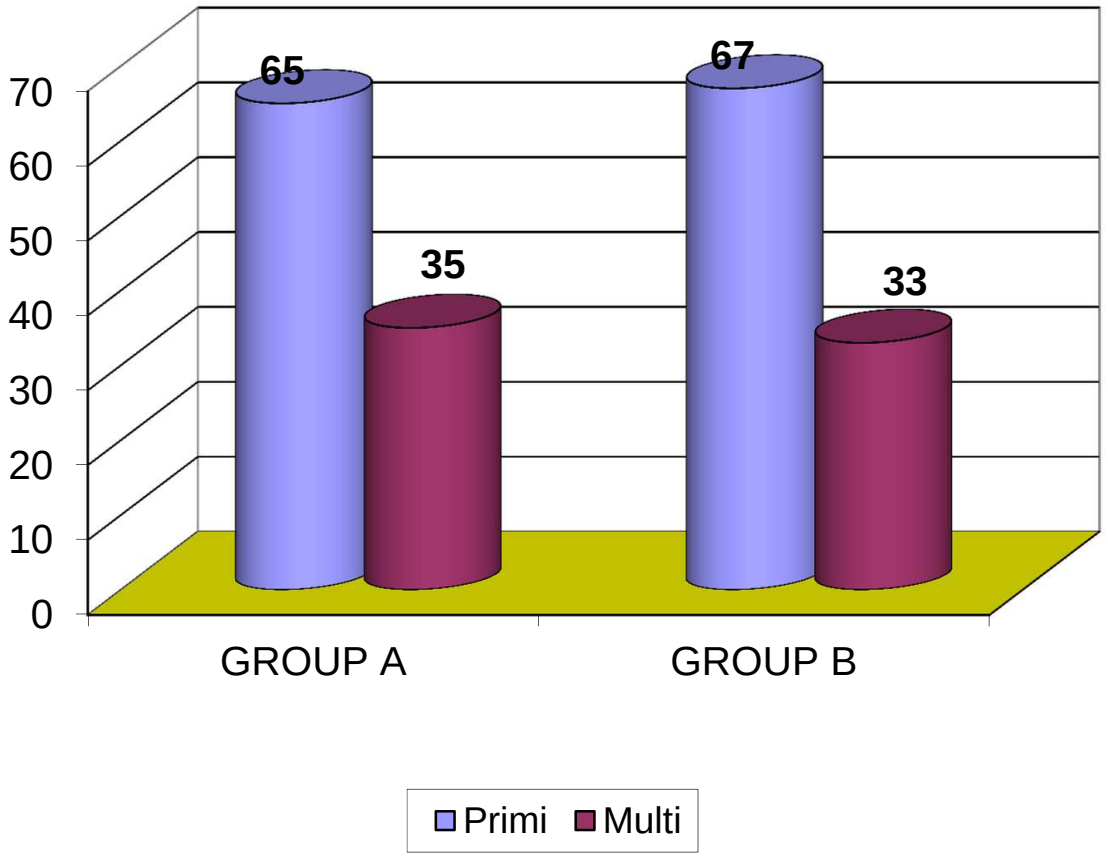
3. Complication of third stage like PPH is 2% in intra umbilical group and retained placenta is 0% in intraumbilical group.

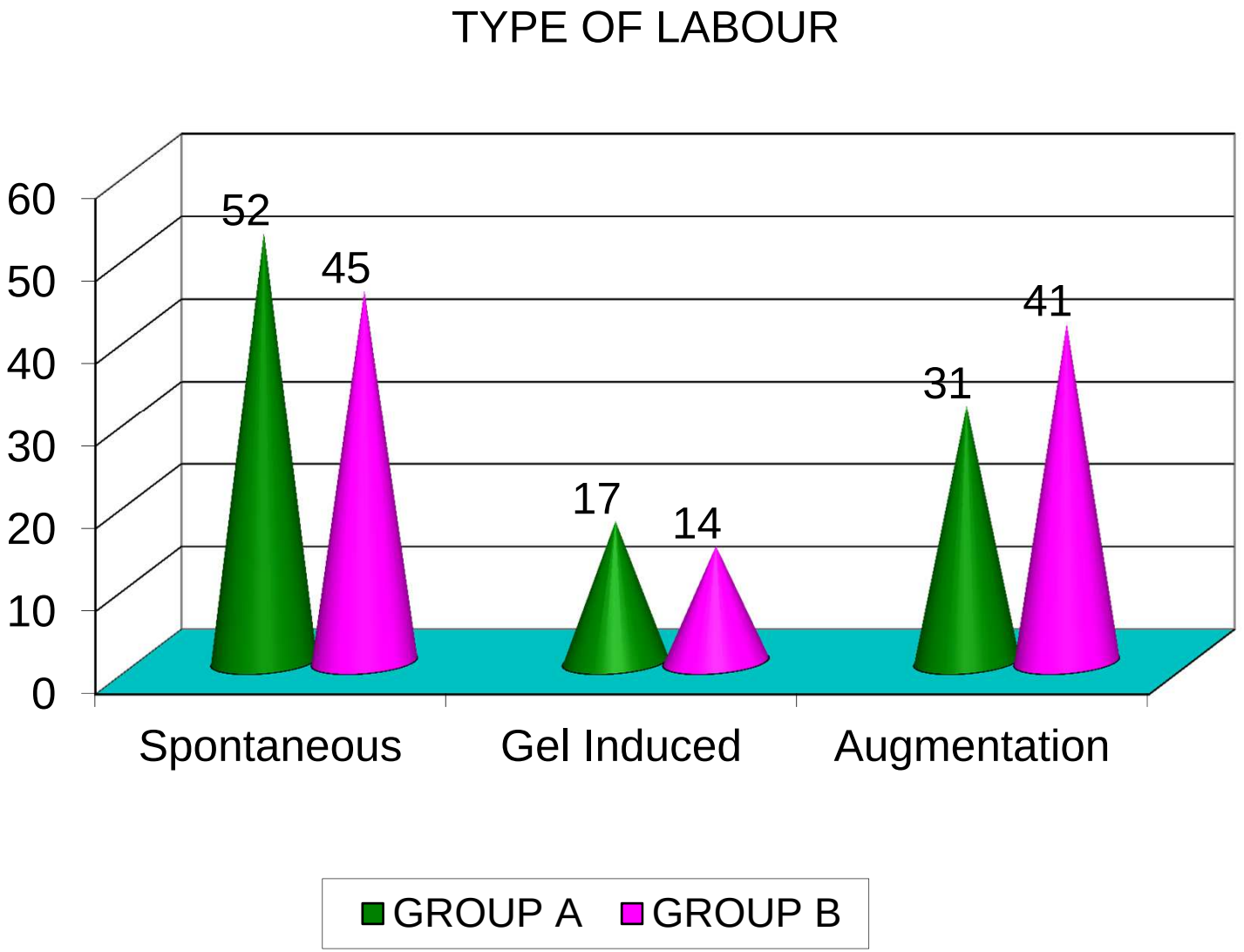
   On Critical evaluation intra umbilical oxytocin is more potent in reducing the amount of blood loss and mean duration of third stage of labour compared to intra muscular oxytocin in low risk population

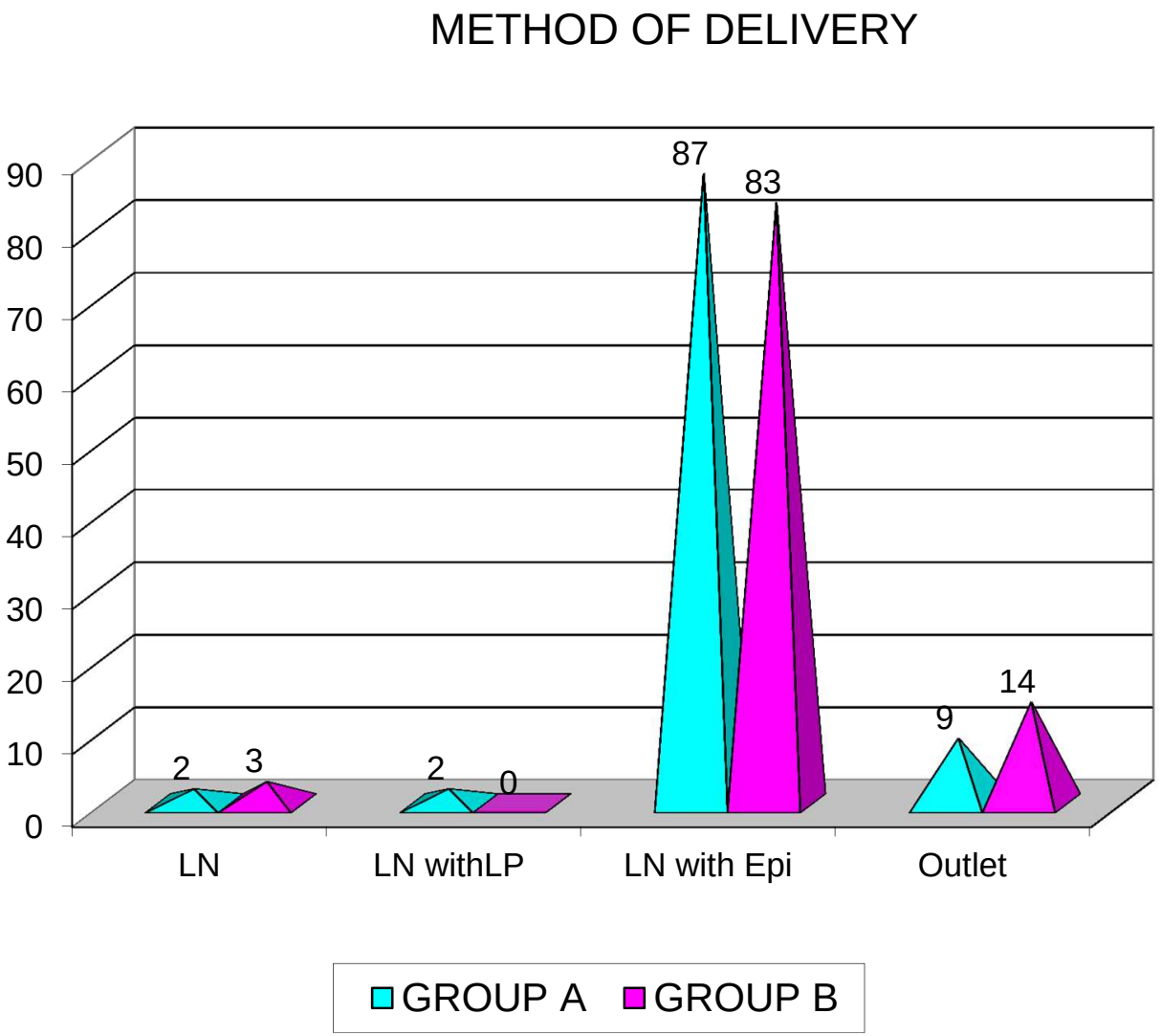
4. Side effects like nausea, vomiting, headache, fever and abdominal pain are similar to intra muscular group.


AGE DISTRIBUTION
AGE IN YEARS
80
70
60
50
40
30
20
10
0
70
68
25
28
5
4
20-24
25-29
30&above
GROUP a
GROUP B

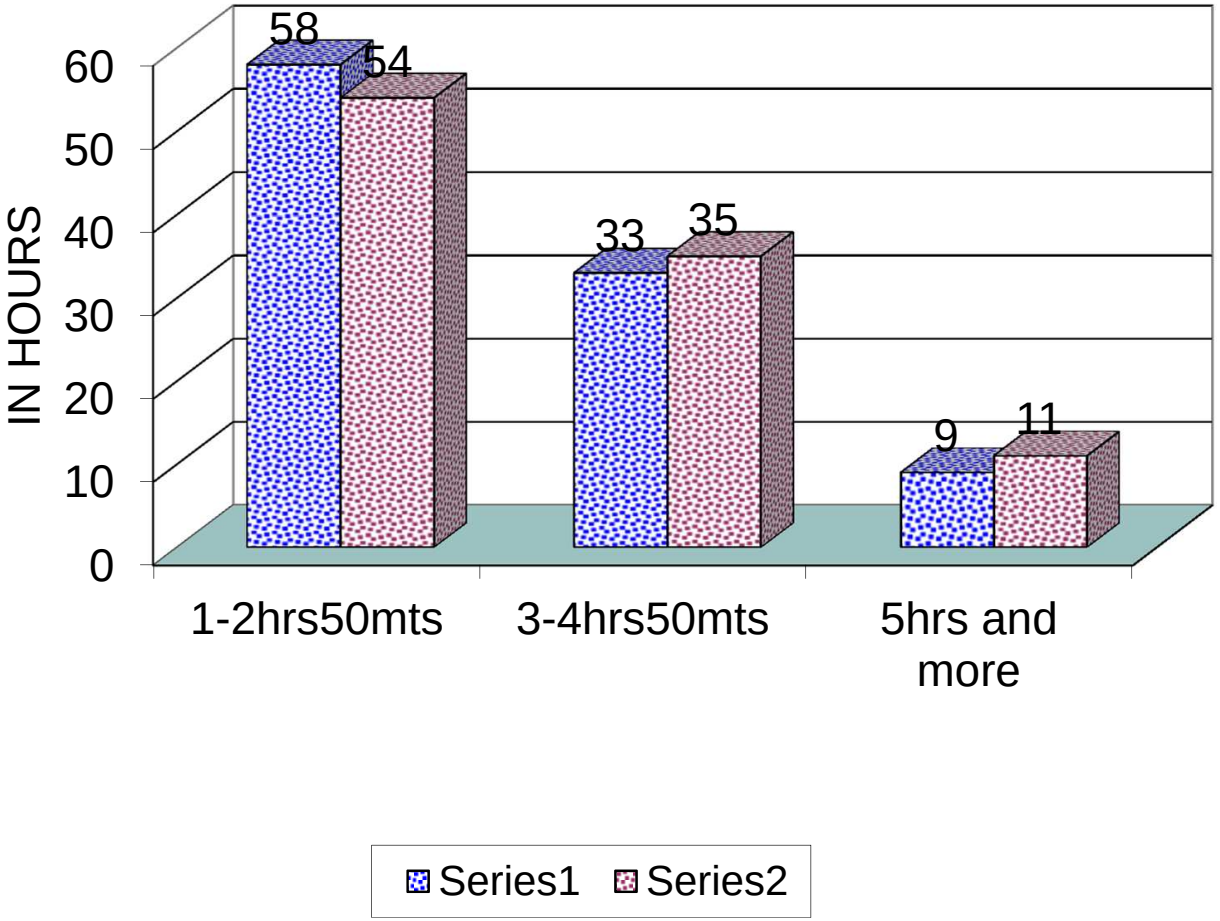
GRAVIDITY DISTRIBUTION

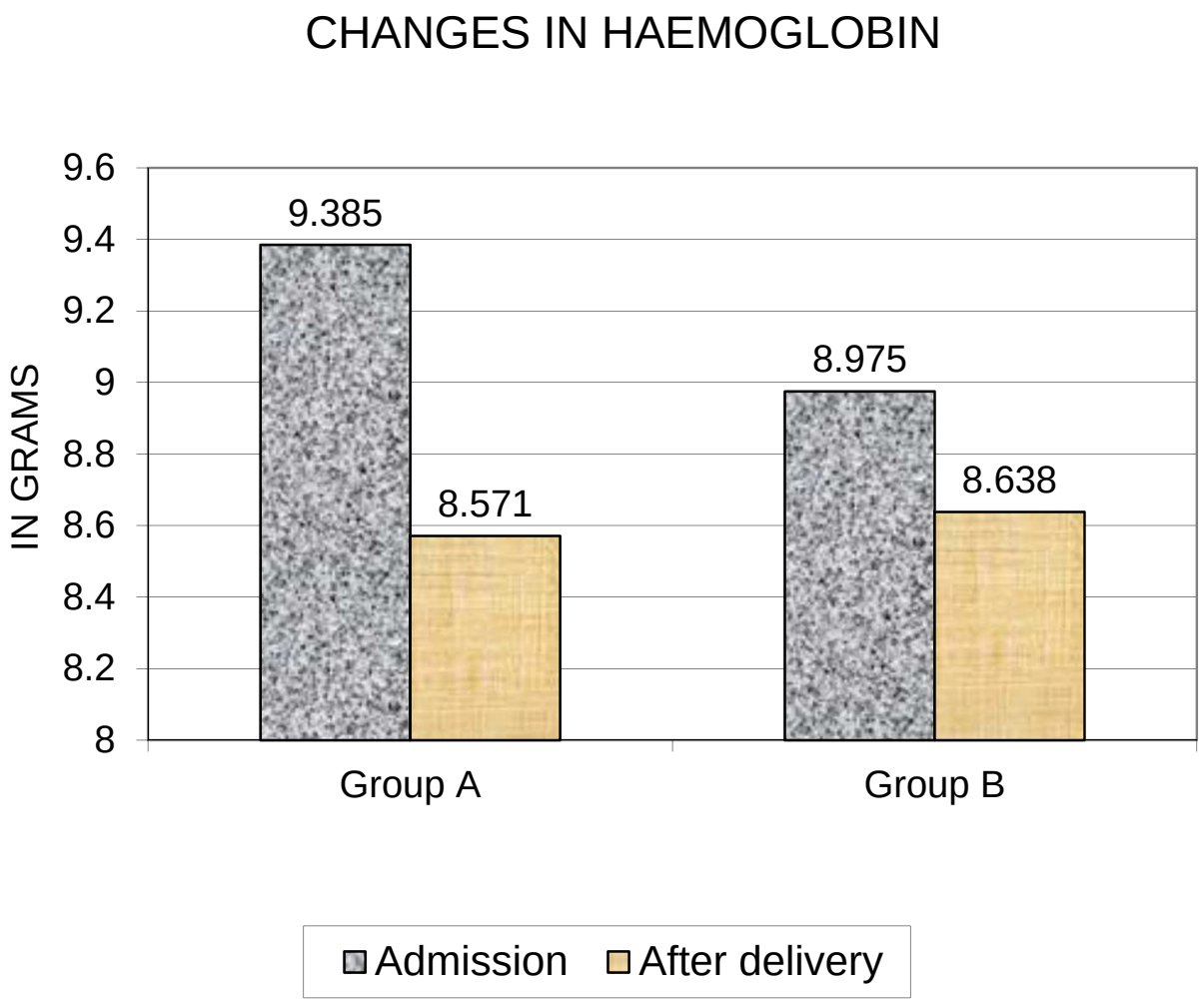


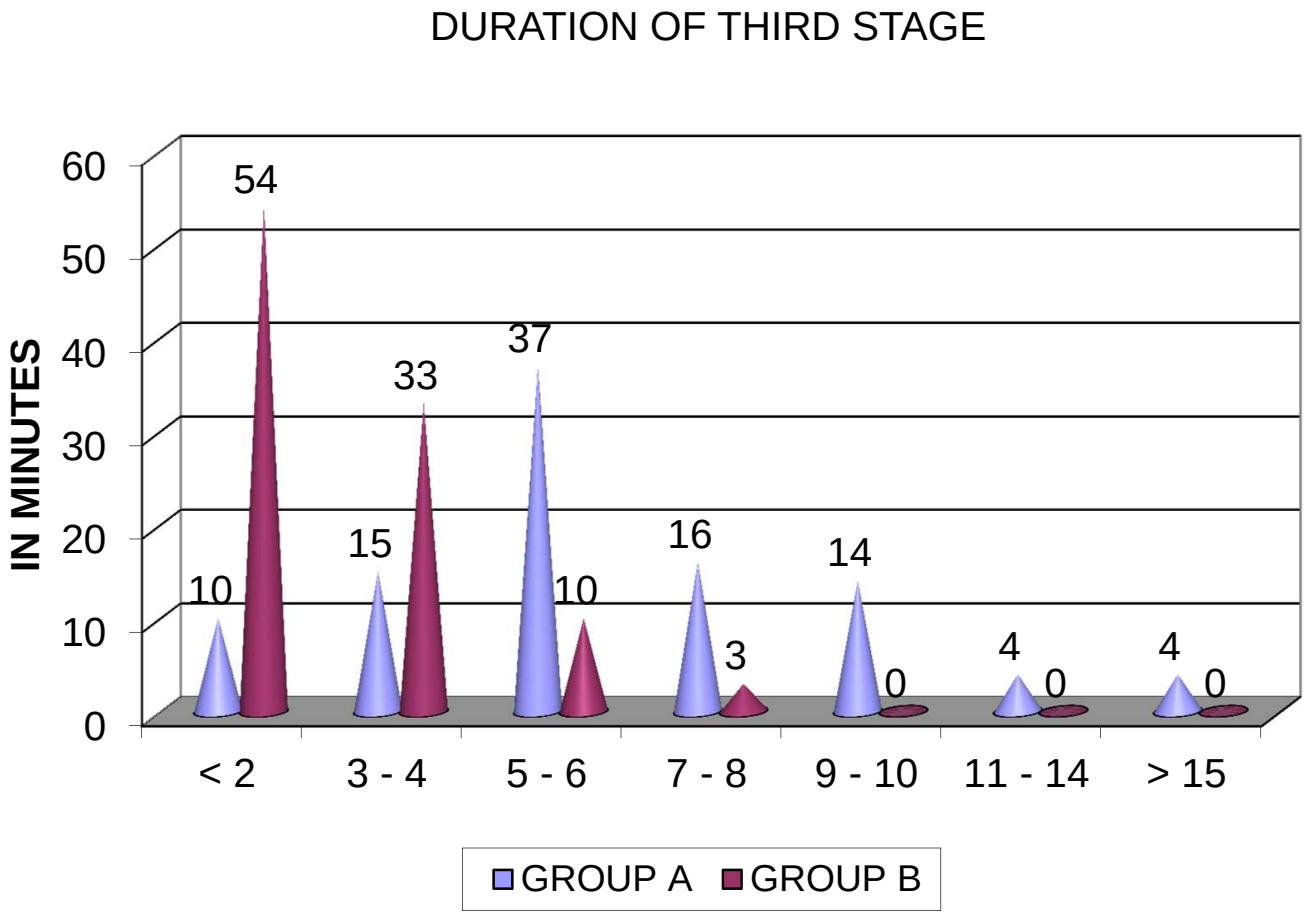

TYPE OF LABOUR
60
50
40
30
20
10
0
52
45
17
14
31
41
Spontaneous
Gel Induced
Augmentation
GROUP A
GROUP B


METHOD OF DELIVERY
90
80
70
60
50
40
30
20
10
0
87
83
14
9
2
3
2
0
LN
LN withLP
LN with Epi
Outlet
GROUP A
GROUP B

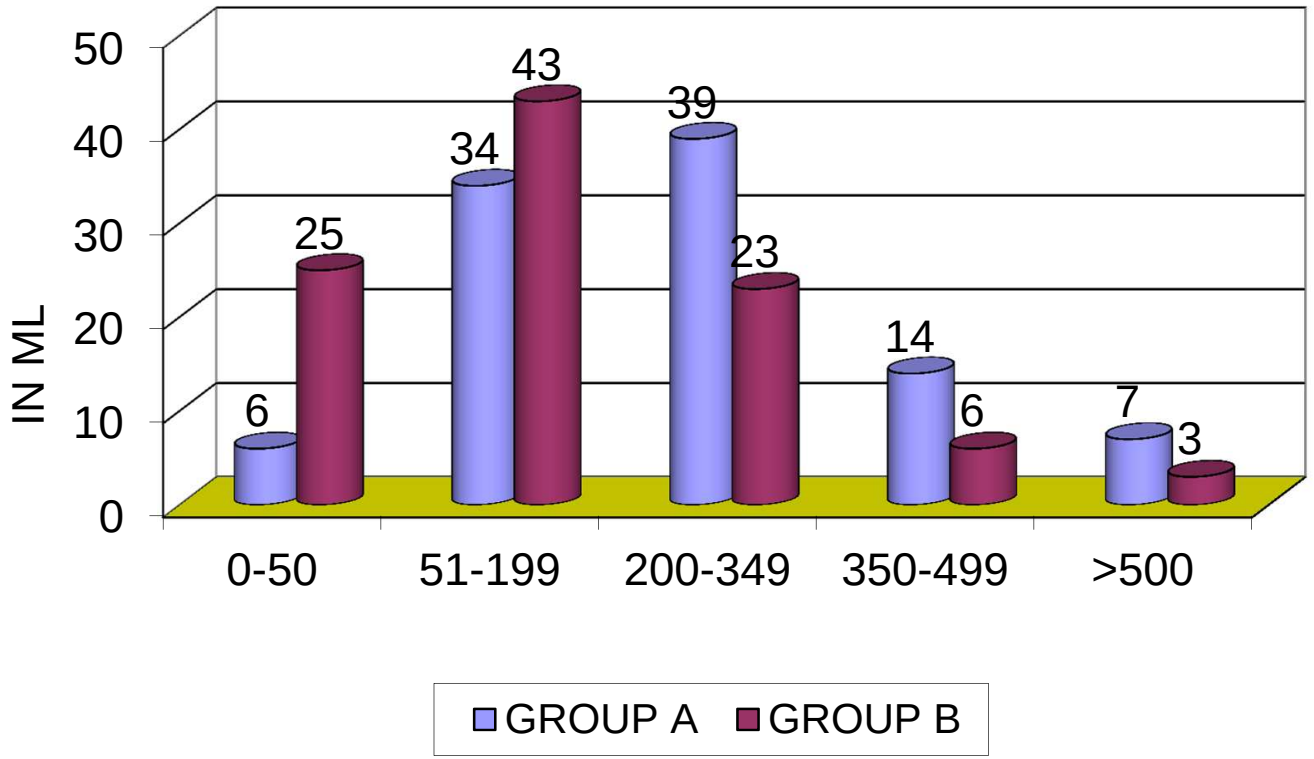
DURATION OF ACTIVE STAGE + II STAGE OF LABOUR

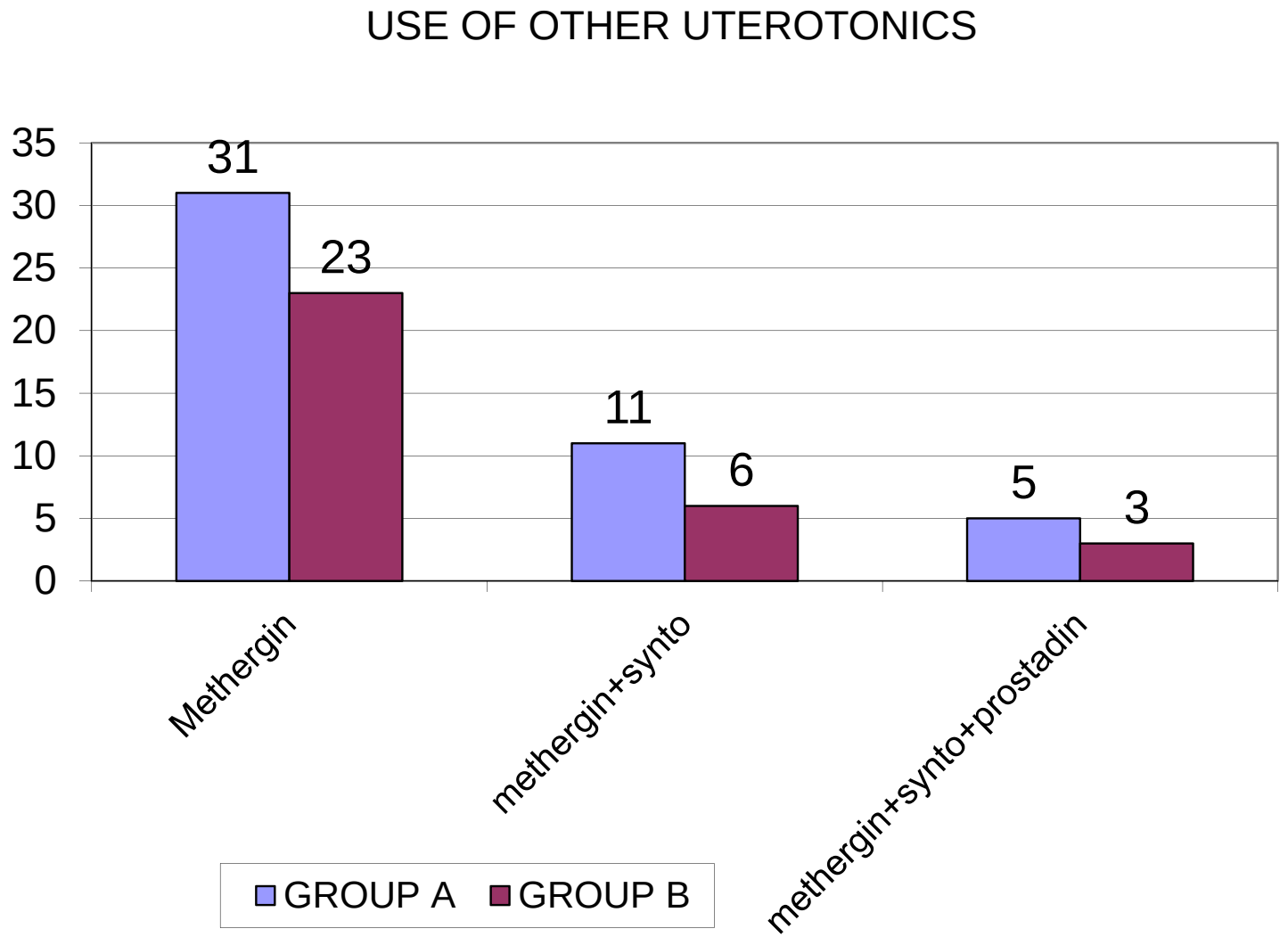



CHANGES IN HAEMOGLOBIN
IN GRAMS
9.6
9.4
9.2
9
8.8
8.6
8.4
8.2
8
9.385
8.571
8.975
8.638
Group A
Group B
Admission
After delivery

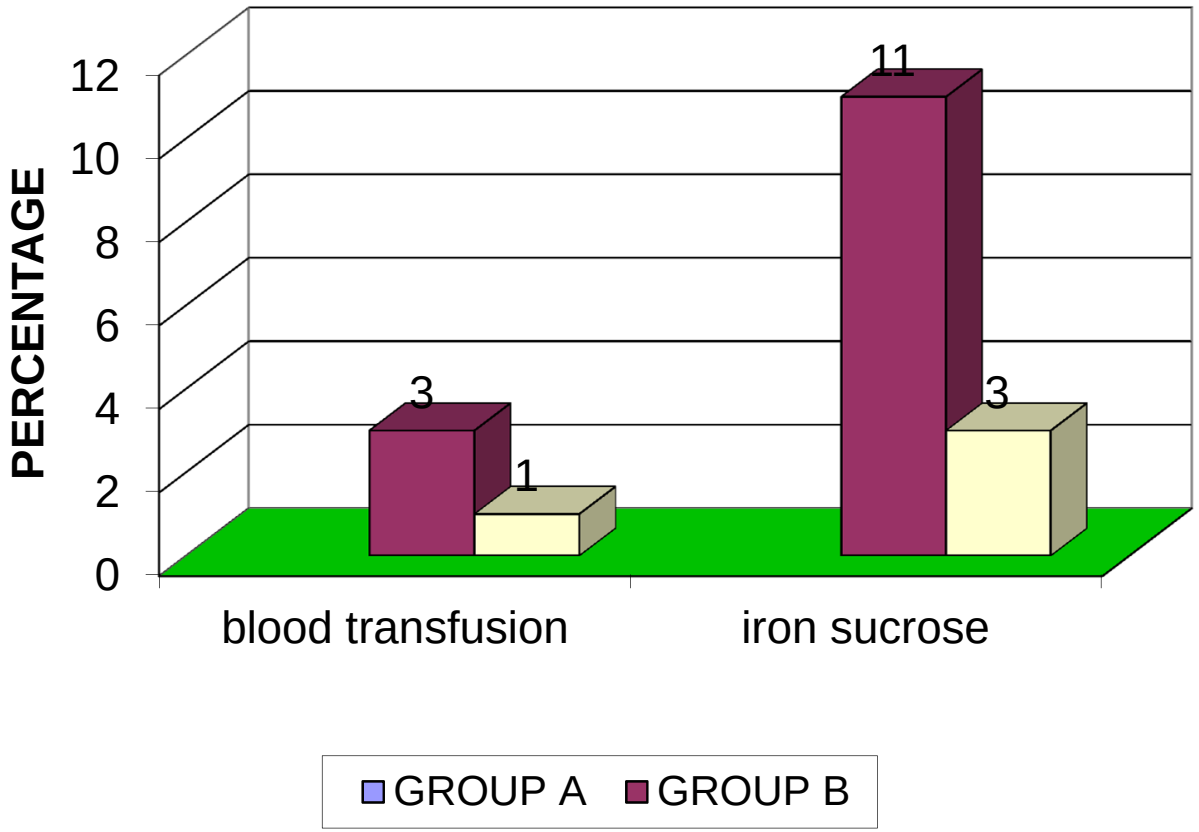

DURATION OF THIRD STAGE
IN MINUTES
60
50
40
30
20
10
0
54
33
37
10
15
10
16
3
14
0
4
0
4
0
< 2
3 - 4
5 - 6
7 - 8
9 - 10
11 - 14
> 15
GROUP A
GROUP B

AMOUNT OF BLOOD LOSS

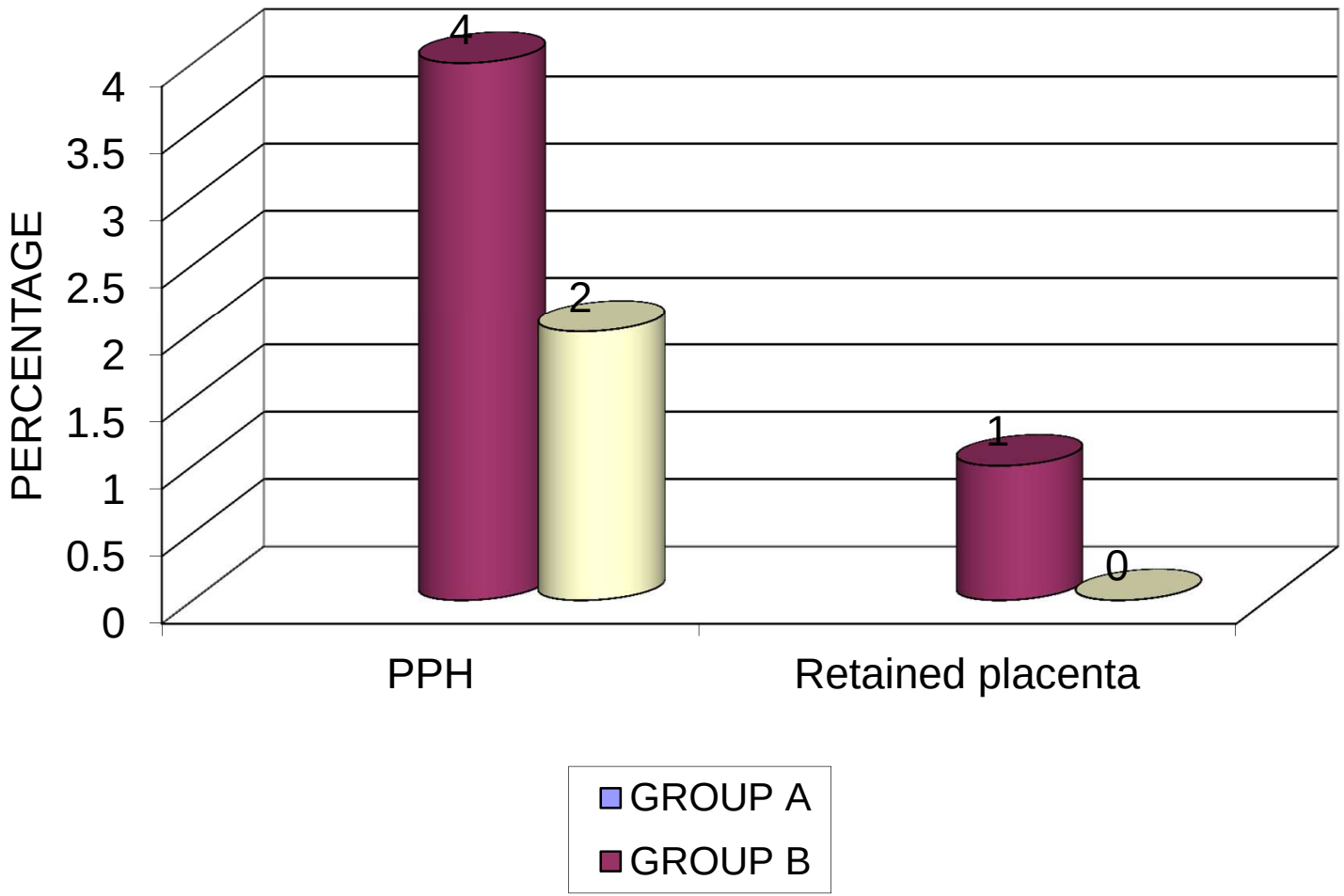



USE OF OTHER UTEROTONICS
35
30
25
20
15
10
5
0
31
23
11
6
5
3
Methergin
methergin+synto
methergin+synto+prostadin
GROUP A
GROUP B

NEED FOR BLOOD TRANFUSION AND IRON SUCROSE



POST PARTUM COMPLICATIONS



BIBLIOGRAPHY

1. Prendiville et al, Active versus expectant management of third stage of labour. Cochrane database system Rev.2000.2

2. Edgardo abalos and associates, Active versus expectant management in the third stage of labour. International journal of Gynaecology and Obstetrics 2006;94:243-253.

3. Gulmezoglu et al (2002) Labour management: Oxytocin in the context of the millennium development goals. International journal of Gynaecology and Obstetrics, 90,251-257.

4. Sadaq Rafiq et al, A study of etiology and management of postpartum hemorrhage, at Nishtar medical college and hospital,Multan. Issue year:2009 Issue no.5, Issue month:December

5. McDonald&Middleton 2008 ,Active management of the third stage of labour : difference between delayed and early cord clamping A 2008 Cochrane review

6. Department of Reproductive Health Research. Managing complications in pregnancy and childbirth: a guide for midwives and doctors. Geneva: WHO; 2000.

7. M.L.McCornick-et-al ,Active Management of third stage of labour , International journal of Gynaecology and Obstetrics 77, 2002; 267-275

8. Athavale RD, Nerurkar NM, Dalvi SA, Bhattacharya MS. Umbilical vein oxytocin in the management of third stage of labour. J Postgrad Med 1991;37:219

9. Gungorduuk K, et al, Using intraumbilical vein injection of oxytocin in routine practice with active management of the third stage of labor: a randomized controlled trial 2010-09, Obstet Gynecol., 116(3):619-24.

10. *Neebha Ojha,*Active management of third stage of labour by oxytocin: Umbilical vein versus intramuscular use N. J. Obstet. Gynaecol Vol. 2, No. 1, p. 13 - 16 May - June 2007.

11. Dahiya P, Puri M, Rathee S. Influence of intraumbilical oxytocin on the third stage of labour. Indian J Med Sci 1995;49:23-7.

12. Kayem Conservative Versus Extirpative Management in Cases of Placenta Accreta Obstetrics & Gynecology September 2004 - Volume 104 - Issue 3 - pp 531-536

13. Tehseen F et al. Intraumbilical veinous injection oxytocin in the active management of third stage of labour. Journal of the physicians and surgeons,Pakistan, 2008 Sep;18(9):551-4.

14. Chestnut DH, Wilcox LL. Influence of umbilical vein administration of oxytocin in the third stage of labour: a randomized double-blind placebo-controlled study. Amer J Obstet & Gynecol 1987; 157:160-162.

15. Golan A, (Baruch) Lidor AL, Wexler S, David MP. A new method for management of the retained placenta. Amer J Obstet & Gynecol 1983; 146:708-709.

16. Selinger M, MacKenzie I, Dunlop P, James D. Intraumbilical vein oxytocin in the management of retained placenta: a double blind controlled study. *J Obslet Gynaecol* 1986; 7: 115-117.

17. The prevention and management of postpartum haemorrhage. Report of a technical working group; WHO/MCH/90.7. Geneva: WorldHealth OIganization, 1989: 4.

18. Asdrubali F. Diario Piamontes. June 3. 1826. Cited by Koerting W. EImetodo de Mojon Gabaston en el tratamiento de las complicacionesdel alumbramiento [in Spanish]. *Semana Medica* 1926; 33: 353.

19. Carroli G. Management of retained placenta by umbilical vein injection. *BrJ Obstet Gynaecol* 1991; 98: 348-350.

20. Huber MGP, Wildschut HlJ, Boer K, Kleiverda G. Hoek FJ. Umbilical vein administration of oxytocin for the management of retainedplacenta: is it effective?

AmJObstet Gynecol1991; 164: 1216-1219.

21. Pipingas A, Hof\neyr GJ, Sesel KR. Umbilical vessel oxytocinadministration for retained placenta: in vitro study of various infusiontechniques. *Am J Obstet Gynecol* 1993; 168: 793-795.

22. Mulrow CD, Oxman AD, editors. Cochrane Collaboration Handbook [updated I March]997]. In: The Cochrane Collaboration. *The Cochrane Library* [database on disk and CDROM]. Oxford: Update Software; 1996.

23. S Kristiansen FV, Frost L, Kaspersen P, Moller U. The etlect of oxytocin injection into the umbilical vein for the management of the retained placenta. *Am J Obstet Gynecol* 1987; 156: 979-980.

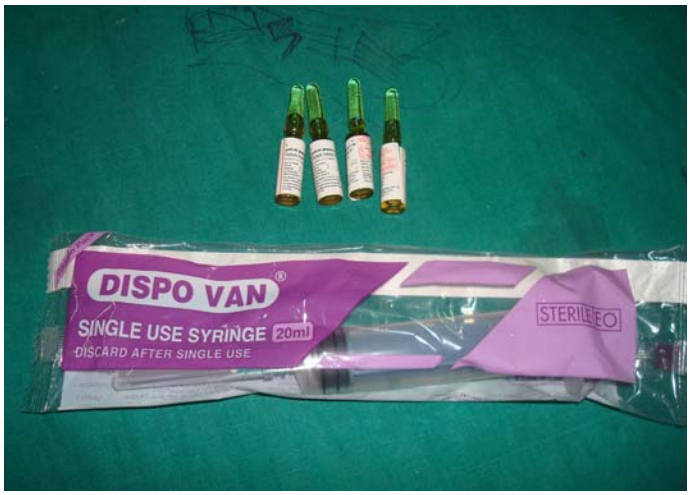
24. Hansen P, Jorgensen L, Dueholm M, Hansen S. Intraumbilikal oxytocin ved behonding afretentio placentae. *Ugeskr Laeger* 1987; 149. 3318-3319.

25. Frappell 1M, Pearce 1M. Intra-umbilical vein oxytocin in the management of retained placenta: a random, prospective, double blind placebo controlled study. *J Obstet Gynaecol* 1988; 8: 322-324.

26. Wilken Jensen C. Strom V, Nielsen MD, Rosenkilde-Gram B. Removing a retained placenta by oxytoci:. a controlled study. *Am J Obstet Gyneco/1989;* 161: 155-156.

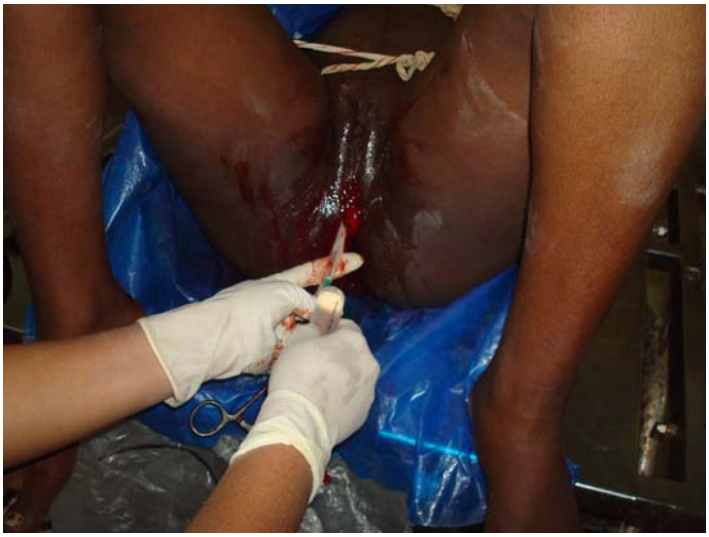
27. Gullermo Carroli et al, 1998, Intra umbilical vein injection and retained placenta : evidence from a collaborative large randomized controlled trial. British Journal of Obstetrics and Gynaecology, Feb 1998, Vol. 105, page 179-185.

20UNITS OXYTOCIN AND 20 MLSYRINGE

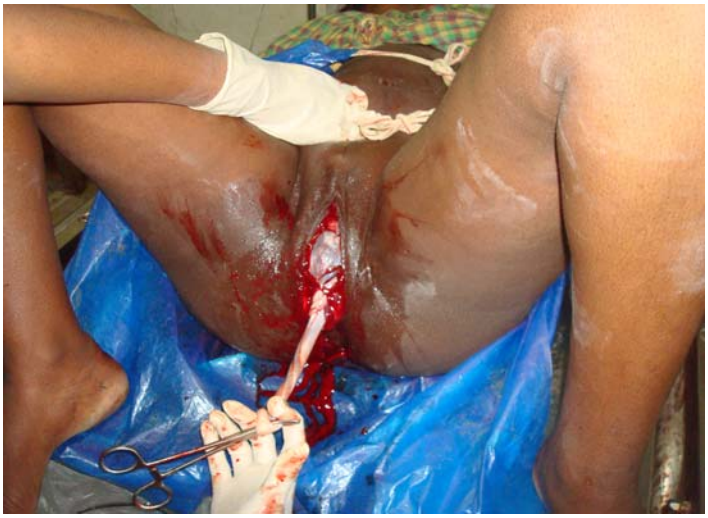


EARLY CORD CLAMPING

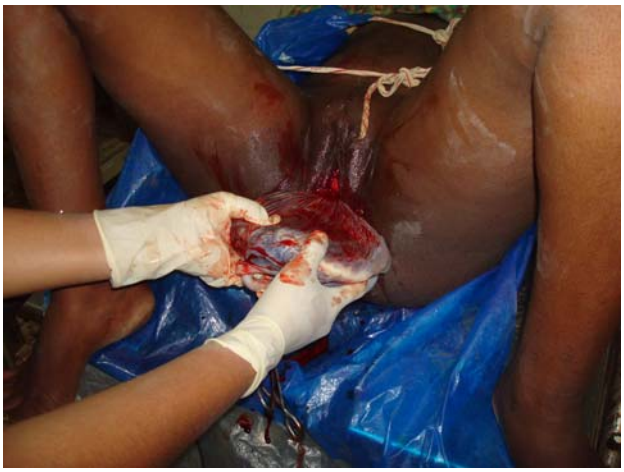
INTRA UMBILICAL INJECTION OF OXYTOCIN



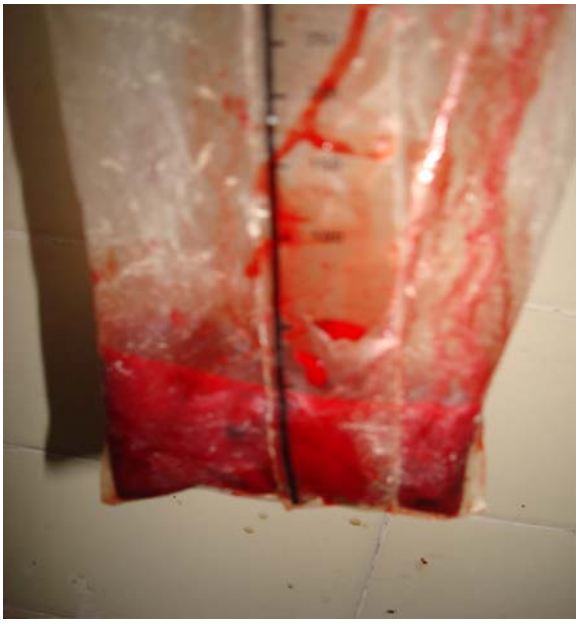
CONTROLLED CORD TRACTION



DELIVERY OF PLACENTA



MEASURMENT OF BLOOD LOSS USING BRASS V DRAPE



PROFORMA

CRITICAL ANALYSIS OF EFFECT OF INTRAUMBILICAL OXYTOCIN INJECTION ON 3RD STAGE OF LABOUR

Name : Age: IP NO:

Obstetric Code:

LMP :

EDD :

Date & Time of admission:

Date & Time ofonset of active stage:

Vitals before delivery: HB: gm% PR: /min BP: mm Hg

Vitals 24-48hrs after delivery: HB: gm% PR: /min BP: mm Hg

Gel induction :

Synto acceleration :

Date & Time of baby delivery: Birth weight:

Mode of delivery :

Duration of I+II Stage :

Date &timeof delivery of placenta:

Duration of III Stage :

III Stage >15 min :

III Stage >30 min :

Usage of methergin :

Usage of IV Synto drip :

Manual removal of Placenta :

Amount of blood loss :

Mild PPH>500ml :

Severe PPH>1000ml :

Need for blood transfusion: No of units:

Nausea :

Vomiting :

Headache :

Subsequent surgical evacuation of retained placental bits:

Fever in postnatal period :

Abdominal pain in postnatal period:

ID	Age	ip no	obstetric Code	Hemoglobin Before delivery	Hemoglobin after delivery	Pulse before delivery	pulse after delivery	Blood Pressure systolic before delivery	Blood Pressure Diastolic before	Blood pressure systolic after delivery	Blood pressure diastolic after delivery	Gel induction	synto accelaration	birth weight	mode of delivery	duration of active stage plus second	duration of third stage	usage of methergine	usage of IV synto drip	usage of inj Prostadin	manual removal of placenta	Amount of blood loss	Need for blood transfusion	Need for iron sucrose	Nausea	Vomitting	Head ache	subsequent surgical evacuation of retained	fever	Abdominal pain	Diastolic BP >100mmhg
1	20	37989	P	10.4	10	86	72	130	80	120	90	N	N	4	LN&EPI	2.50	6.00	Y	N	N	N	300	N	N	N	N	N	N	N	Y	N
2	24	39016	P	10.2	9	82	78	120	86	120	80	Y	Y	3	LN&EPI	3.2	5.00	Y	Y	N	N	300	N	N	N	N	N	N	N	Y	N
3	27	40451	P	9	8.8	78	72	110	70	110	70	N	N	3	LN&EPI	3.00	2.00	N	N	N	N	130	N	N	N	N	N	N	N	Y	N
4	20	41099	P	8.8	8.6	72	70	120	80	120	80	N	Y	3	LN&EPI	2.20	6.00	Y	N	N	N	270	N	N	N	N	N	N	N	N	N
5	21	4108	P	9.1	8.8	72	70	120	80	110	70	N	Y	3	LN&EPI	1.50	6.00	N	N	N	N	175	N	N	N	N	N	N	N	N	N
6	21	3974	P	8.4	8.2	83	82	140	80	130	80	N	Y	3	LN&EPI	2.00	7.00	Y	N	N	N	320	N	N	N	N	N	N	N	N	N
7	20	41664	P	9.2	9	76	72	120	80	110	70	N	Y	3	LN&EPI	4.12	5.00	N	N	N	N	120	N	N	N	N	N	N	N	N	N
8	23	40110	P	9.2	8.2	98	78	130	90	130	80	N	N	3	LN&EPI	3.00	2.00	N	N	N	N	230	N	N	N	N	N	N	N	Y	N
9	30	41529	M	10.8	10.2	88	86	120	80	110	70	N	N	3	LN&LP	2.45	3.00	N	N	N	N	215	N	N	N	N	N	N	N	N	N
10	20	42205	P	11.2	10.8	82	78	120	80	110	70	N	Y	3	LN&EPI	1.26	5.00	N	N	N	N	110	N	N	N	N	N	N	N	Y	N
11	23	4049	P	8.8	8.6	84	78	120	80	110	70	N	Y	3	LN&EPI	1.30	10.00	N	N	N	N	50	N	N	N	Y	N	N	N	N	N
12	20	42433	P	9	8.2	78	77	110	70	110	70	N	N	3	LN&EPI	3.15	6.00	N	N	N	N	170	N	N	N	N	N	N	N	Y	N
13	22	4010	P	9.8	9.6	92	88	120	80	120	70	N	Y	3	LN&EPI	1.53	7.00	N	N	N	N	100	N	N	N	N	N	N	N	Y	N
14	29	41855	M	9	8.4	80	78	120	80	110	70	N	N	3	LN&EPI	1.20	2.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N
15	23	3975	P	9.2	8.9	84	72	110	70	110	70	N	Y	3	LN&EPI	2.50	5.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
16	22	42112	P	8.6	8.4	74	72	130	80	120	90	N	N	3	LN&EPI	1.20	10.00	N	N	N	N	120	N	N	N	N	N	N	N	Y	N
17	23	42765	P	9.2	8.4	78	77	150	90	130	80	N	Y	4	O&EPI	3.55	32.00	Y	Y	Y	Y	380	N	N	N	N	N	N	Y	N	N
18	23	47911	P	9.6	9	82	80	140	90	130	80	N	N	3	O&EPI	2.07	2.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
19	24	4066	M	9	8.6	82	72	110	80	110	80	N	N	3	LN	2.00	10.00	N	N	N	N	200	N	N	N	N	N	N	N	Y	N
20	30	4E+05	P	8.8	8	84	72	120	80	120	70	N	N	3	LN&EPI	3.30	5.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N
21	20	43670	P	8.2	6	78	90	120	80	110	70	N	N	3	LN&EPI	3.25	4.00	Y	N	Y	N	520	Y	N	N	N	N	N	N	Y	N
22	30	43504	M	8.5	8	78	72	100	70	106	70	N	Y	4	LN&EPI	2.15	5.00	N	N	N	N	150	N	N	N	N	N	N	N	Y	N
23	26	43813	M	9.2	8.8	78	72	110	70	100	70	N	N	3	LN&EPI	2.00	5.00	N	N	N	N	80	N	N	N	N	N	N	Y	Y	N
24	27	43688	M	8.2	7.6	76	72	100	70	100	70	N	Y	3	LN&EPI	1.50	5.00	N	N	N	N	200	N	N	N	N	N	N	N	Y	N
25	21	43521	M	8.8	8.6	78	72	110	70	110	70	N	N	3	LN&EPI	2.35	7.00	N	N	N	N	110	N	N	N	N	N	N	N	N	N
26	20	417	P	10	8.8	94	90	110	70	110	70	Y	Y	3	LN&EPI	3.00	5.00	N	N	N	N	220	N	N	N	N	N	N	N	Y	N
27	20	4171	P	8.8	8.2	86	82	120	80	110	70	Y	Y	3	LN&EPI	2.45	5.00	N	N	N	N	150	N	N	Y	N	N	N	N	N	N
28	20	44234	P	11.1	11	80	82	130	80	120	80	N	Y	3	LN&EPI	1.30	6.00	N	N	N	N	30	N	N	N	N	N	N	N	Y	N
29	23	44224	M	8.8	8.6	76	72	110	70	110	70	N	N	3	LN&EPI	1.16	3.00	N	N	N	N	50	N	N	N	N	N	N	N	N	N
30	23	46040	P	9.2	7.8	78	72	110	70	110	70	Y	Y	3	LN&EPI	3.40	3.00	Y	N	N	N	350	N	Y	N	N	N	N	N	N	N
31	21	48277	P	8.4	8.2	82	80	130	70	120	70	N	Y	3	LN&EPI	3.20	10.00	N	N	N	N	90	N	N	N	N	N	N	N	N	N

32	23	48290	P	8.6	8	80	76	110	70	110	70	N	N	3	LN&EPI	2.30	3.00	N	N	N	N	250	N	N	N	N	Y	N	N	N	N
33	24	48926	M	8.8	8.6	79	73	120	80	110	70	N	N	3	LN&EPI	1.45	11.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
34	20	48818	M	9.2	8.8	78	75	110	70	110	70	N	N	3	LN&EPI	1.45	5.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
35	23	4695	M	9.4	9	88	86	110	80	110	70	N	Y	3	LN&EPI	2.00	2.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
36	21	48626	P	10.2	9.9	82	80	110	80	110	70	N	N	3	LN&EPI	4.00	6.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
37	26	48853	P	10.2	10	78	72	130	90	120	80	N	N	3	LN&EPI	2.00	3.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
38	23	48128	P	9	8.5	84	72	120	80	120	80	Y	N	3	LN&EPI	5.00	2.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
39	23	48349	P	8.8	7.8	82	72	110	80	110	70	Y	N	3	LN&EPI	2.50	3.00	N	N	N	N	350	N	Y	N	N	N	N	N	N	N
40	23	4694	P	8.8	8.2	96	72	110	70	110	70	Y	Y	3	O&EPI	1.15	3.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
41	20	48875	P	10.5	9.8	72	82	110	80	110	80	N	Y	4	LN&EPI	1.30	5.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N
42	20	48940	M	9.4	9	78	72	120	80	120	80	N	N	3	LN&EPI	1.15	2.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N
43	20	48906	P	8.6	7	74	82	130	100	130	90	N	N	3	LN&EPI	1.30	4.00	N	N	N	N	500	N	Y	N	N	N	N	N	Y	N
44	23	48945	M	8.8	8.6	69	72	120	80	120	80	N	N	3	LN&EPI	3.00	3.00	N	N	N	N	100	N	N	N	N	N	N	N	Y	N
45	26	48942	M	9.2	8.8	74	72	100	80	100	70	N	Y	3	LN&EPI	1.30	2.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
46	23	5259	M	10.4	8.8	80	72	110	80	110	80	N	Y	4	LN&EPI	1.00	2.00	N	N	N	N	450	N	N	N	N	N	N	N	Y	N
47	24	53304	M	9.2	9	80	78	110	80	110	80	N	N	3	LN	2.00	3.00	N	N	N	N	50	N	N	N	N	N	N	N	N	N
48	20	62748	P	9	9	80	76	110	80	110	70	Y	Y	3	LN&EPI	2.00	5.00	N	N	N	N	50	N	N	N	N	N	N	N	N	N
49	23	64401	P	9.8	9.4	80	78	120	80	110	70	y	n	3	LN&EPI	4.00	8.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
50	28	65631	M	8.4	8.4	84	72	120	80	110	70	N	Y	3	LN&EPI	3.00	10.00	N	N	N	N	50	N	N	N	N	N	N	N	N	N
51	25	6600	P	8.8	7.4	82	78	120	80	120	80	N	N	3	LN&EPI	3.00	12.00	N	N	N	N	300	N	Y	N	N	N	N	N	N	N
52	27	66668	P	9.2	8.6	80	80	100	70	100	70	N	N	3	LN&EPI	2.00	8.00	N	N	N	N	200	N	N	N	N	N	N	N	Y	N
53	20	66451	P	9.8	9.2	104	90	100	70	100	70	N	N	3	LN&EPI	5.00	7.00	Y	N	N	N	350	N	N	N	N	N	N	N	N	N
54	22	66698	P	9.2	8	84	78	120	70	120	80	N	Y	3	LN &EPI	2.30	8.00	N	N	N	N	250	N	N	N	N	N	N	N	Y	N
55	22	66688	P	10.3	8	80	72	120	70	120	80	N	Y	3	LN&EPI	3.00	12.00	Y	Y	N	N	400	N	N	N	N	N	N	N	Y	N
56	25	66620	M	9.2	8.4	78	72	120	80	120	80	Y	N	3	LN&EPI	4.00	9.00	Y	N	N	N	350	N	N	N	N	N	N	N	Y	N
57	25	66851	M	9.8	8	80	78	12	80	120	80	N	N	3	LN&EPI	3.45	7.00	N	N	N	N	300	N	N	N	N	N	N	N	N	N
58	30	67084	M	8.8	7.8	84	82	110	80	110	80	N	Y	3	LN &EPI	2.00	5.00	Y	Y	N	N	500	N	Y	N	N	N	N	N	N	N
59	21	67186	P	9.5	9	84	72	120	80	120	80	N	N	3	LN&EPI	1.40	8.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N
60	27	6736	M	9	8.6	80	82	110	70	110	70	Y	N	3	LN&EPI	3.00	6.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
61	20	6760	P	10.2	8.8	82	78	120	80	120	80	N	N	3	LN&EPI	1.45	5.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
62	24	6754	M	8.8	8	80	72	12	80	120	100	N	N	3	LN&EPI	2.00	7.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
63	22	67164	P	10.2	9.9	86	84	110	70	110	70	N	N	4	LN&EPI	2.00	6.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
64	26	6772	P	10.2	8.4	80	78	100	70	100	70	Y	N	3	LN&EPI	3.00	6.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
65	22	6754	P	8.4	8	82	80	120	80	120	80	N	Y	3	LN&EPI	2.30	10.00	Y	N	N	N	250	N	N	N	N	N	N	N	N	N
66	20	67356	P	10.4	10	84	82	110	80	110	70	N	Y	3	LN&EPI	2.00	15.00	N	N	N	N	250	N	N	N	N	N	N	N	N	N
67	20	67129	P	10.9	10	78	72	110	70	110	70	Y	N	3	O&EPI	8.45	5.00	Y	N	N	N	300	N	N	N	N	N	N	N	Y	N
68	20	6834	M	10.9	10	78	72	110	70	110	70	Y	N	3	LN&EPI	2.00	11.00	N	N	N	N	220	N	N	N	N	N	N	N	N	N
69	20	6854	P	10	9	86	84	120	80	120	80	N	N	3	LN&EPI	2.00	10.00	N	N	N	N	230	N	N	N	N	N	N	N	N	N
70	25	6885	P	9	8	82	80	110	80	110	70	Y	N	3	LN&EPI	3.00	10.00	N	N	N	N	280	N	N	N	N	N	N	N	Y	N

71	25	6888	P	8	7.8	86	78	130	80	120	80	Y	N	3	LN&EPI	7.00	6.00	N	N	N	N	190	N	N	N	N	N	N	N	N	N
72	21	6893	M	10	7	80	82	100	80	100	80	N	Y	2	LN&EPI	2.30	10.00	Y	N	N	N	500	N	Y	N	N	N	N	N	Y	N
73	32	6919	M	9.6	8.4	82	82	110	80	110	70	N	N	3	LN&EPI	2.00	6.00	N	N	N	N	280	N	N	N	N	N	N	N	N	N
74	22	6882	P	8.6	6.4	80	90	130	70	120	80	N	N	3	LN&EPI	2.20	4.00	Y	Y	Y	N	640	Y	N	N	N	N	N	N	N	N
75	25	6973	P	9	8	84	82	110	80	110	80	N	N	3	LN&EPI	3.00	15.00	Y	N	N	N	480	N	N	N	N	N	N	N	N	N
76	23	7001	M	9.4	8.6	86	84	120	80	120	80	N	N	3	LN&EPI	2.00	3.00	N	N	N	N	85	N	N	N	N	N	N	N	N	N
77	23	6970	P	9.7	8.8	88	84	110	80	110	70	N	N	3	LN&EPI	2.20	5.00	Y	N	N	N	320	N	N	N	N	N	N	N	N	N
78	24	6950	M	10	8.8	78	72	110	70	110	70	N	Y	3	LN&EPI	3.00	7.00	Y	N	N	N	300	N	N	N	N	N	N	N	N	N
79	20	7872	P	8.8	7	82	78	120	80	120	80	N	N	3	LN&EPI	3.00	10.00	Y	Y	N	N	430	N	Y	N	N	N	N	N	N	N
80	21	6984	P	9.7	7.4	84	78	120	80	120	80	N	N	3	O&EPI	7.00	8.00	Y	Y	N	N	460	N	Y	N	N	N	N	N	N	N
81	28	7953	M	9.4	9.4	82	83	110	70	110	70	N	N	3	LN&LP	6.20	5.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
82	29	7886	M	11.2	9.9	80	78	110	70	110	80	N	Y	3	LN&EPI	2.00	6.00	Y	N	N	N	340	N	N	N	N	N	N	N	Y	N
83	28	7848	M	8.6	7.7	82	76	120	80	120	80	N	N	3	LN&EPI	2.45	10.00	Y	N	N	N	390	N	Y	N	N	N	N	N	N	N
84	23	7923	P	10.2	7.9	92	86	140	90	120	80	N	N	2	LN&EPI	5.35	6.00	Y	Y	N	N	450	N	Y	N	N	N	N	N	N	N
85	21	67895	M	9.2	7.4	80	72	120	80	110	70	N	Y	3	O&EPI	3.00	5.00	Y	Y	Y	N	520	N	Y	N	N	N	N	N	N	N
86	20	7693	P	9.6	8.4	82	83	120	80	120	80	N	Y	3	LN&EPI	3.15	10.00	Y	N	N	N	280	N	N	N	N	N	N	N	N	N
87	22	7993	P	9.6	9	86	85	100	70	100	70	N	N	3	LN&EPI	4.55	8.00	N	N	N	N	140	N	N	N	N	N	N	N	N	N
88	25	7029	P	9.8	8	82	72	100	60	100	60	N	Y	3	LN&EPI	2.20	7.00	Y	N	N	N	260	N	N	N	N	N	N	N	N	N
89	22	7920	P	9.6	9.6	80	80	120	80	110	70	N	N	3	LN&EPI	2.10	5.00	N	N	N	N	70	N	N	N	N	N	N	N	Y	N
90	23	7955	P	10.2	8.2	92	88	120	80	120	80	N	N	3	O&EPI	4.55	8.00	Y	N	N	N	400	N	N	N	N	N	N	N	N	N
91	26	8118	M	8.8	8.2	79	80	110	70	110	70	N	N	3	LN&EPI	1.40	7.00	N	N	N	N	120	N	N	N	N	N	N	N	N	N
92	22	8132	P	8.8	8.2	78	72	120	80	120	80	N	N	3	LN&EPI	5.35	10.00	N	N	N	N	150	N	N	N	N	N	N	N	N	N
93	26	8123	P	8.8	8.8	80	80	110	70	110	70	N	N	3	LN&EPI	1.40	6.00	N	N	N	N	90	N	N	N	N	N	N	N	N	N
94	27	8054	M	8.2	7	80	82	110	70	110	70	N	N	3	LN&EPI	3.55	3.00	Y	N	N	N	250	N	N	N	N	N	N	N	N	N
95	28	8079	M	8.4	8.4	82	80	120	80	120	80	N	N	4	LN&EPI	5.08	5.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
96	23	8074	P	10	9	80	80	110	70	110	70	N	N	3	LN&EPI	4.10	3.00	N	N	N	N	100	N	N	N	N	N	N	N	N	N
97	25	7980	M	10.8	9	88	82	110	60	110	70	N	N	3	O&EPI	2.45	5.00	Y	N	N	N	300	N	N	N	N	N	N	N	N	N
98	23	8021	P	10.1	8.4	86	82	110	70	110	70	N	N	3	O&EPI	1.32	5.00	Y	Y	N	N	400	N	N	N	N	N	N	N	N	N
99	21	8058	P	9	7.6	82	80	130	100	140	90	Y	N	3	LN&EPI	3.40	6.00	Y	Y	Y	N	1000	Y	N	N	N	N	N	N	N	N
100	22	8151	P	10	9.8	88	82	110	70	110	70	N	Y	3	LN&EPI	3.15	15.00	N	N	N	N	200	N	N	N	N	N	N	N	N	N

ID	Age	ipno	obstetric code	hb before delivery	hb after delivery	PR before delivery	PR after delivery	BP systolic before delivery	BP diastolic before delivery	Blood pressure systolic after	Blood pressure diastolic after	GeI induction	synto acceleration	birth weight	mode of delivery	duration of active	duration of 3rd stage	use of methergin	use of synto drip	use of prostadin	manual removal of placenta	amount of blood loss	need for blood transfusion	need for iron sucrose	nausea	vomiting	headache	surgical evacuation of	fever	abdominal pain	diastolic BP >100mm of Hg
1	23	371726	P	10	9.2	72	80	126	80	124	80	N	N	2.8	O&EPI	2.3	3	Y	Y	Y	N	320	N	N	N	N	N	N	N	N	N
2	23	3529	M	8.8	8.6	94	86	110	70	100	60	N	N	2.5	LN	4.02	2	N	N	N	N	200	N	N	N	N	N	N	N	Y	N
3	24	3476	p	9	8.2	82	92	110	70	116	80	y	y	2.7	LN&EPI	1.43	2	Y	N	N	N	280	N	N	N	N	N	N	N	Y	N
4	20	3559	P	10	9.4	82	92	110	70	130	100	N	N	2.9	LN&EPI	2.15	2	N	N	N	N	250	N	N	N	N	N	N	N	N	Y
5	29	37800	M	8.8	8.6	108	72	104	70	98	60	N	N	2.5	LN&EPI	1.26	1	N	N	N	N	160	N	N	N	N	N	N	N	Y	N
6	28	38271	M	8.6	8	88	64	110	80	130	110	N	N	2.5	LN&EPI	2	2	Y	N	N	N	350	N	N	N	N	N	N	N	Y	Y
7	25	13912	M	9	8.4	84	89	100	70	90	70	N	Y	2.7	LN&EPI	2.55	1	Y	Y	N	N	320	N	N	N	N	N	N	N	N	N
8	22	3799	M	9.6	9.2	80	79	120	80	110	70	N	N	2.6	LN&EPI	3.05	2	N	N	N	N	100	N	N	N	N	N	N	N	N	N
9	27	40253	M	9.8	9.6	80	71	110	70	100	70	N	Y	2.9	LN	1.4	1	N	N	N	N	40	N	N	N	N	N	N	N	N	N
10	27	40463	M	9	8.8	81	72	110	80	110	70	N	N	2.8	O&EPI	4.58	1	Y	N	N	N	230	N	N	N	N	N	N	N	N	N
11	28	43298	M	8.6	8.5	76	72	130	90	130	80	N	Y	3.5	LN&EPI	2.2	2	N	N	N	N	75	N	N	N	N	N	N	N	Y	N
12	20	4098	P	8.8	8.4	86	82	120	80	120	80	N	N	2.8	LN&EPI	2.14	2	Y	N	N	N	250	N	N	N	N	N	N	Y	N	N
13	24	44889	P	10	8.8	88	84	100	60	100	60	Y	N	2.8	O&EPI	1.13	2	Y	Y	N	N	550	N	N	N	N	N	N	N	Y	N
14	27	44950	P	8.4	8.2	86	84	110	70	110	70	N	N	2.8	O&EPI	1.45	3	N	N	N	N	150	N	N	N	N	N	N	N	N	N
15	23	44955	P	8.6	7.4	84	102	130	100	130	90	N	N	2.8	LN&EPI	1.35	3	Y	Y	Y	N	450	Y	Y	N	N	N	N	N	N	N
16	23	4273	P	9	7.8	96	82	120	80	120	80	Y	Y	2.9	LN&EPI	3.4	5	Y	Y	Y	N	500	N	Y	N	N	N	N	N	N	N
17	22	5275	P	9.2	9	82	84	120	80	120	70	N	Y	2.9	LN&EPI	1.35	1	N	N	N	N	50	N	N	N	N	N	N	N	Y	N
18	21	5266	P	8.4	7	80	92	100	70	100	60	N	Y	3.1	LN&EPI	1.16	2	N	N	N	N	180	N	Y	N	N	N	N	N	N	N
19	23	5189	P	9.2	9.2	80	72	110	80	110	70	Y	N	3	LN&EPI	3.15	3	N	N	N	N	50	N	N	N	N	N	N	N	N	N
20	21	5249	M	9.2	8.9	84	84	120	80	120	80	N	N	3.2	LN&EPI	1.42	4	Y	N	N	N	300	N	N	N	N	N	N	N	N	N
21	20	62993	P	8.2	8.2	88	78	120	80	120	80	N	Y	2.5	LN&EPI	4.5	3	N	N	N	N	65	N	N	N	N	N	N	N	N	N
22	20	6207	P	8.4	8.4	82	80	120	80	120	80	N	Y	2.8	O&EPI	3.56	2	N	N	N	N	80	N	N	N	N	N	N	N	N	N
23	20	62445	P	9	9	84	70	120	80	120	80	N	Y	3.2	LN&EPI	1.3	2	N	N	N	N	40	N	N	N	N	N	N	N	N	N
24	22	63544	P	8.2	8	82	80	110	70	120	80	N	Y	3.2	LN&EPI	2.56	3	N	N	N	N	120	N	N	N	N	N	N	N	Y	N
25	28	6331	M	8.6	8.5	82	78	100	60	100	70	N	N	3.3	LN&EPI	3.25	2	N	N	N	N	75	N	N	N	N	N	N	N	N	N
26	23	63340	P	8.4	8	80	80	110	80	110	80	N	Y	3.1	LN&EPI	3.1	2	N	N	N	N	210	N	N	N	N	N	N	N	N	N
27	35	63229	M	9	9	82	80	110	70	110	80	Y	N	2.2	LN&EPI	3	1	N	N	N	N	50	N	N	N	N	N	N	N	N	N
28	23	64983	P	9.6	9.6	80	72	100	80	100	70	N	Y	3.5	LN&EPI	3.05	2	N	N	N	N	50	N	N	N	N	N	N	N	N	N
29	21	22958	P	9.4	9.4	82	82	120	80	120	80	N	N	3.2	LN&EPI	4.45	1	N	N	N	N	45	N	N	N	N	N	N	N	N	N
30	25	8534	M	10	9.2	88	82	110	70	110	70	N	N	3.5	LN&EPI	2.1	2	Y	N	N	N	350	N	N	N	N	N	N	N	Y	N
31	23	65002	P	9.2	9	86	84	120	80	120	80	N	Y	2.9	LN&EPI	6.4	4	Y	N	N	N	180	N	N	N	N	N	N	N	Y	N

32	23	66947	P	9.6	9.4	86	84	100	70	100	70	Y	N	2.4	LN&EPI	1.55	4	N	N	N	N	100	N	N	N	N	N	N	N	N	N
33	21	6733	P	8.4	8.4	86	82	110	80	110	70	N	N	2.5	LN&EPI	2.3	1	N	N	N	N	50	N	N	N	N	N	N	N	N	N
34	26	6880	P	9.2	9.2	80	78	110	70	110	70	Y	N	2.4	LN&EPI	2.2	4	N	N	N	N	50	N	N	N	N	N	N	N	Y	N
35	30	6816	M	8.8	8.6	88	82	12	80	120	80	Y	N	2.5	LN&LP	2.35	2	N	N	N	N	50	N	N	N	N	N	N	N	Y	N
36	26	6935	M	8	8	82	82	130	80	120	80	N	N	2.8	LN&EPI	2.05	3	N	N	N	N	90	N	N	N	N	N	N	N	Y	N
37	20	6995	P	9.6	8.9	72	70	120	80	120	80	N	N	2.5	LN&EPI	4	5	N	N	N	N	130	N	N	N	N	N	N	N	Y	N
38	25	24298	M	8.2	8	82	72	120	80	120	70	N	N	2.7	O&EPI	3.45	2	N	N	N	N	130	N	N	N	N	N	N	N	N	N
39	20	7861	P	9	8.8	86	82	90	60	90	60	N	Y	2.6	LN&EPI	2.47	5	N	N	N	N	150	N	N	N	N	N	N	N	N	N
40	22	8075	P	8.9	8.8	88	86	120	80	120	80	N	Y	2.7	LN&EPI	1.3	5	N	N	N	N	100	N	N	N	N	N	N	N	N	N
41	29	9493	P	8.6	8.4	80	80	110	80	110	80	N	N	2.9	O&EPI	3.5	4	N	N	N	N	135	N	N	N	N	N	N	N	N	N
42	23	9415	P	8.6	8.5	80	82	110	80	110	80	N	N	2.5	LN&EPI	4.05	3	N	N	N	N	70	N	N	N	N	N	N	N	Y	N
43	21	9366	P	8.8	8.2	80	80	120	80	120	70	N	N	2.8	LN&EPI	3.45	2	N	N	N	N	175	N	N	N	N	N	N	N	N	N
44	20	9610	P	8.2	8	80	80	110	80	110	70	N	Y	2.5	LN&EPI	4.55	3	N	N	N	N	200	N	N	N	N	N	N	N	N	N
45	22	9595	P	9	8.9	89	72	124	80	116	78	Y	N	2.7	LN&EPI	3.26	2	N	N	N	N	40	N	N	N	N	N	N	N	N	N
46	27	9568	M	8.4	8	80	78	120	80	110	70	N	N	3.4	LN&EPI	5.55	3	N	N	N	N	70	N	N	N	N	N	N	N	N	N
47	27	9729	M	8.9	8.8	80	82	110	70	110	70	N	Y	3.4	LN&EPI	5.2	2	N	N	N	N	200	N	N	N	N	N	N	N	N	N
48	22	9731	M	9.8	9.8	82	82	110	70	110	70	N	N	3.5	LN&EPI	3.2	3	N	N	N	N	50	N	N	N	N	N	N	N	N	N
49	20	9371	M	11	11	86	82	110	70	110	70	N	N	2.8	LN&EPI	2.2	2	N	N	N	N	40	N	N	N	N	N	N	N	Y	N
50	26	9724	P	8.8	8.8	86	84	110	80	110	70	N	Y	2.6	LN&EPI	3.1	2	N	N	N	N	50	N	N	N	N	N	N	N	N	N
51	25	9631	P	9	8	82	84	110	80	110	70	N	Y	2.5	LN&EPI	5.5	4	Y	N	N	N	300	N	N	N	N	N	N	N	N	N
52	20	9235	P	8	8	88	78	120	80	120	80	N	N	2.2	LN&EPI	2.5	2	N	N	N	N	50	N	N	N	N	N	N	N	N	N
53	21	9711	M	8.4	8.4	80	80	110	80	110	70	N	N	2.5	LN&EPI	4.55	3	N	N	N	N	40	N	N	N	N	N	N	N	N	N
54	29	9772	P	8.2	8	84	80	120	70	110	70	N	N	2.8	LN&EPI	6.2	2	N	N	N	N	125	N	N	N	N	N	N	N	Y	N
55	25	75587	P	9	8.6	84	80	120	80	110	70	N	N	2.5	LN&EPI	6	6	Y	N	N	N	200	N	N	N	N	N	N	N	N	N
56	24	7774	P	10	10	80	82	130	80	130	80	N	N	2.8	LN&EPI	2.25	1	N	N	N	N	30	N	N	N	N	N	N	N	Y	N
57	26	7874	M	8.9	8.8	84	82	120	80	110	70	N	N	3.2	LN&EPI	2.35	2	N	N	N	N	75	N	N	N	N	N	N	N	N	N
58	23	7873	M	8.8	8	84	82	110	80	110	70	N	N	2.8	LN&EPI	2.45	2	Y	N	N	N	350	N	N	N	N	N	N	N	N	N
59	23	7911	P	8.8	8.8	82	72	120	80	120	80	N	N	2.5	LN&EPI	2.45	3	N	N	N	N	40	N	N	N	N	N	N	N	N	N
60	20	7895	P	9	8.8	78	72	110	80	110	70	Y	N	2.8	O&EPI	2.3	4	N	N	N	N	175	N	N	N	N	N	N	N	N	N
61	25	7912	P	9	8.8	82	80	120	80	120	80	Y	N	2.5	LN&EPI	2.1	3	N	N	N	N	100	N	N	N	N	N	N	N	N	N
62	21	7872	P	9.6	9.6	84	82	120	80	120	80	N	N	2.7	LN&EPI	2.35	2	N	N	N	N	30	N	N	N	N	N	N	N	N	N
63	22	7907	P	8.6	8	78	80	120	90	120	80	N	N	2.7	O&EPI	2.5	5	Y	N	N	N	250	N	N	N	N	N	N	N	Y	N
64	21	7885	P	9	8.8	82	80	110	80	110	70	N	N	3.1	LN&EPI	3.1	1	N	N	N	N	130	N	N	N	N	N	N	N	N	N
65	22	7850	P	9.4	9.4	82	82	120	80	120	80	Y	N	3.5	O&EPI	4.25	1	N	N	N	N	50	N	N	N	N	N	N	N	N	N
66	25	7994	M	9.8	9	86	82	120	80	120	80	N	N	3	LN&EPI	6.05	6	Y	Y	N	N	650	N	N	N	N	N	N	N	Y	N
67	25	7937	P	9	8.6	88	80	110	80	110	80	N	Y	2.7	LN&EPI	2.35	6	N	N	N	N	150	N	N	N	N	N	N	N	Y	N
68	20	7998	M	10	9.2	82	80	110	70	110	70	N	Y	2.5	LN&EPI	6.55	2	N	N	N	N	40	N	N	N	N	N	N	N	N	N

69	20	7875	P	8.4	8	86	80	120	80	120	80	N	Y	3.3	LN&EPI	4.3	4	N	N	N	N	200	N	N	N	N	N	N	N	Y	N
70	20	8048	P	8.6	8.2	82	80	120	80	120	80	N	Y	3.2	LN&EPI	3.05	2	N	N	N	N	125	N	N	N	N	N	N	N	N	N
71	25	8019	M	9	8	90	82	100	70	100	70	N	Y	2.7	LN&EPI	2.3	3	N	N	N	N	275	N	N	N	N	N	N	N	Y	N
72	24	8026	P	8.6	8	80	82	120	80	120	80	N	Y	2.5	LN&EPI	4.05	4	N	N	N	N	150	N	N	N	N	N	N	N	Y	N
73	23	8737	P	11	10	80	72	100	70	100	70	N	Y	2.8	LN&EPI	5.05	5	N	N	N	N	80	N	N	N	N	N	N	N	N	N
74	22	8064	P	8	8	86	82	120	80	120	80	N	Y	2.8	LN&EPI	2	2	N	N	N	N	70	N	N	N	N	N	N	N	N	N
75	23	8065	P	9.2	8.8	82	80	120	80	120	80	N	Y	2.5	LN&EPI	3.25	2	N	N	N	N	70	N	N	N	N	N	N	N	Y	N
76	24	8033	P	9	8.6	80	78	120	80	110	70	N	N	3.1	LN&EPI	7.5	3	N	N	N	N	100	N	N	N	N	N	N	N	N	N
77	23	8036	P	8.9	8.4	84	82	120	80	120	80	Y	Y	2.9	LN&EPI	5.1	2	Y	N	N	N	350	N	N	N	Y	N	N	N	Y	N
78	30	8024	M	8.8	8.6	82	72	120	80	120	80	N	N	2.5	LN&EPI	3.55	4	N	N	N	N	30	N	N	N	N	N	N	N	Y	N
79	22	8240	P	9.4	9	84	82	120	80	120	80	N	N	3	LN&EPI	3.25	2	N	N	N	N	200	N	N	N	N	N	N	N	N	N
80	23	8307	P	10	9.6	84	82	120	80	120	80	N	Y	3	LN&EPI	3.05	2	N	N	N	N	120	N	N	N	N	N	N	N	N	N
81	20	8308	P	9	8.8	84	82	120	80	120	80	N	Y	3.5	LN&EPI	3.2	4	N	N	N	N	180	N	N	N	N	N	N	N	N	N
82	20	8349	P	8.2	8	84	80	120	80	120	80	N	N	2.5	LN&EPI	3.3	3	N	N	N	N	150	N	N	N	N	Y	N	N	N	N
83	24	8353	P	9.2	8.2	80	84	120	80	110	70	N	Y	3	O&EPI	1.5	4	Y	N	N	N	450	N	N	N	N	N	N	Y	N	N
84	21	8359	M	8.4	8.2	80	80	110	80	110	80	N	N	2.5	LN&EPI	1.55	1	N	N	N	N	30	N	N	N	N	N	N	N	N	N
85	23	8352	P	8.6	8.4	82	80	120	80	120	80	N	Y	3	LN&EPI	2.05	8	Y	N	N	N	200	N	N	N	N	N	N	N	N	N
86	35	8358	M	11	10	82	80	120	80	120	80	N	Y	2.7	LN&EPI	1.25	3	N	N	N	N	150	N	N	N	N	N	N	N	N	N
87	23	8361	M	8.8	8.4	88	80	120	80	120	80	N	Y	3	LN&EPI	1.27	7	N	N	N	N	180	N	N	N	N	N	N	N	N	N
88	20	8357	P	9	8.6	82	80	120	80	120	80	N	Y	2.5	O&EPI	2.25	4	Y	N	N	N	200	N	N	N	N	N	N	N	N	N
89	22	8351	P	9	8.8	82	80	120	80	110	70	Y	Y	3.2	LN&EPI	1.4	7	N	N	N	N	150	N	N	N	N	N	N	N	N	N
90	20	8368	P	9	8.2	84	82	150	100	130	80	N	N	3.8	LN&EPI	2.35	4	N	N	N	N	220	N	N	N	N	N	N	N	N	N
91	20	8445	P	8.8	8.4	84	82	120	70	120	70	N	Y	3	LN&EPI	4.26	2	N	N	N	N	70	N	N	N	N	N	N	N	N	N
92	28	78096	M	8.8	8.2	86	88	120	80	120	80	N	N	2.7	LN&EPI	2.35	1	N	N	N	N	120	N	N	N	N	N	N	N	Y	N
93	20	8786	P	8.2	8	84	82	120	80	120	80	N	Y	2.5	LN	2.11	3	Y	N	N	N	220	N	N	N	N	N	N	N	N	N
94	23	8839	M	8.4	8.2	88	80	110	80	120	80	N	Y	3	LN&EPI	2.35	6	N	N	N	N	225	N	N	N	N	N	N	N	Y	N
95	22	8788	M	8.8	8.8	82	88	130	80	120	80	N	N	3	LN&EPI	1.55	2	N	N	N	N	40	N	N	N	N	N	N	N	N	N
96	22	8972	P	8.2	8	88	78	110	80	110	80	N	N	2.5	LN&EPI	2.25	2	N	N	N	N	80	N	N	N	N	N	N	N	N	N
97	25	9038	P	8.4	8.4	82	80	130	80	120	80	N	Y	3.1	LN&EPI	3.07	2	N	N	N	N	100	N	N	N	N	N	N	N	N	N
98	22	9093	M	8.6	8.2	80	80	120	80	120	80	N	Y	2.5	LN&EPI	2.45	1	N	N	N	N	40	N	N	N	N	N	N	N	N	N
99	28	9124	P	8.8	8.6	84	82	120	80	120	80	N	Y	3.1	O&EPI	1.4	1	N	N	N	N	80	N	N	N	N	N	N	N	N	N
100	25	9550	P	8.6	8.4	110	92	110	80	110	70	N	N	3.1	O&EPI	2.32	2	Y	N	N	N	200	N	N	N	N	N	N	N	N	N