DR PREETI SINGH

Role of Calcium in the Prevention of Pre-Eclampsia

Dr. Preeti Singh[1], Dr. Kumari Bibha[2], Dr. Abha Sinha[3]

INTRODUCTION

High blood pressure with or without proteinuria is a major cause of maternal death and morbidity worldwide, as well as perinatal morbidity and mortality. Hypertension has been estimated to complicate 5% of all pregnancies and 11% of first Pregnancies. Half the women with hypertension have pre-eclampsia. Hypertensive disorders account for up to 40 000 maternal deaths annually.These disorders are also associated with adverse perinatal outcomes such as stillbirth, preterm and small for gestational age babies.For this reason, strategies to reduce the risk of hypertensive disorders of pregnancy have received considerable attention.

Pre-eclampsia, as defined by the Working Group of the National High Blood Pressure Education Program, is hypertension (blood pressure > 140/90 mmHg using Korotkoff V sound for diastolic blood pressure) associated with proteinuria (300 mg or more in 24 hour urine). Pre-eclampsia community guideline (PRECOG) takes only diastolic blood pressure of •e 90 mmHg to define hypertension. It is responsible for 15% of all direct maternal deaths in the UK and 24% of all maternal deaths in India.

Kaunitz and associates reviewed the causes of maternal mortality in the United States and found that 421 (20%) of 2067 maternal deaths between 1974 and 1978 were related to hypertensive diseases. The clinical course of gestational hypertension is progressive and is characterized by continuous deterioration that is ultimately stoped only by delivery. Early detection and appropriate management of the pregnancy may improve the outcome for both the mother and the fetus.

Gestational hypertension and significant proteinuria (2+ by dipstick testing, greater than or equal to 300 mg/24 hours, or greater than or equal to 500 mg/l) usually indicate the presence of preeclampsia. Urine protein/ creatinine ratio is used increasingly as a measure of proteinuria. Predictors of poor outcome include low gestational age and high levels of proteinuria.

Gestational hypertension, which includes preeclampsia and eclampsia, is responsible for 70% of cases, whereas chronic hypertension represents 30% of hypertensive disorders in pregnancy. Most cases of preeclampsia occur in nulli-parous women.

The incidence of pre-eclampsia in hospital practice is 5-15%. The incidence in primigravidae is about 10% and in multigravidae 5%. Imperfect documentation and lack of uniformity in the diagnostic criteria are the responsible factors in variation of its frequency.

Also, the incidence is markedly influenced by race and ethnicity – and thus by genetic predisposition. The incidence is unrelated to zygosity (Maxwell and associates, 2001). The incidence for pre-eclampsia in white women was 1.8 percent compared with 3 percent in African – American women.

The increase incidence of gestational hypertension in patients older than 35 years probably reflects undiagnosed chronic hypertension with superimposed gestational hypertension.

The incidence of gestational hypertension is also increased in patients pregnant with twins (25.9%) and in patients who had gestational hypertension in a previous pregnancy. Other risk factors include pregestational diabetes, vascular or connective tissue disease, nephropathy, antiphospholipid antibody syndrome, obesity, positive family history, and African American race.

The etiology of gestational hypertension is unknown, despite intensive research worldwide, and there is confusion about its classification, diagnosis, and treatment. More than 100 names have been given to the disease. However , great advances in the understanding of the pathophysiology of gestational hypertension allow clinicians to better evaluate and manage patients. This progress is primarily responsible for the recent decline in maternal and perinatal mortality and morbidity rates.

This disease is a multisystem disorder of unknown etiology, and placental ischemia is considered to have a major role in the pathogenesis of these complications.[20-21]

Preeclampsia is associated with reduced intravascular production of prostacyclin and excessive production of thromboxane A2.

During the past two decades, numerous clinical trials were conducted to evaluate the effectiveness of various methods to prevent or reduce the incidence of preeclampsia.

The results of several clinical trials and meta-analyses have suggested that calcium supplementation reduces the incidence of preeclampsia. Other trials also have shown the beneficial effect of this compound in reducing the occurrence of preeclampsia.

Low calcium intake may cause high blood pressure by stimulating either parathyroid hormone or renine release, thereby increasing intracellular calcium in vascular smooth muscle and leading to vasoconstriction. A possible mode of action for calcium supplementation is that it reduces parathyroid release and intracellular calcium and so reduces smooth muscle contractility. By a

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similar mechanism, calcium supplementation could also reduce uterine smooth muscle contractility and prevents preterm labour and delivery. Calcium might also have an indirect effect on smooth muscle function by increasing magnesium levels.

Prevention of Pre-eclampsia would be a great step forward in prenatal care. During past several years, numerous clinical trials described the use of various methods to prevent of reduce the incidence of preeclampsia. One such primary prevention (which means avoiding occurrence of diseases) is oral supplementation of high dose calcium (2gm/day) after 20 weeks of pregnancy.

Data from epidemiological &observational studies have shown that there is an inverse relationship between calcium intake and the frequency of pre-eclampsia. Calcium can be used as an effective & inexpensive preventive measure to reduce the risk of pre-eclampsia in healthy nulliparous pregnant women. This supplementation also had a desirable effect on newborn birth weight.

Possible mechanism by which calcium reduce pre-eclampsia include inhibition of pathological process, such as endothelial damage. Reports suggest that calcium supplementation prevents pre-eclampsia by increasing the production of vascular Nitric oxide (NO) and also prostacyclin.

Several studies in different countries have been undertaken to study the effect of calcium supplementation on reducing pre-eclampsia among pregnant women. Conflicting results have been reported. While majority of studies support the role of calcium in reducing incidence of pre-eclampsia among pregnant women, some studies have failed to demonstrate such beneficiary effect.

This study was undertaken to evaluate the role of supplementary calcium on reducing incidence of pre-eclampsia in Indian women with high risk of pre-eclampsia.

AIMS & OBJECTIVES

Pre-eclampsia is not a totally preventable disease. Somewhat, it is found more related to some of social ills such as poor maternal nutrition, limited or no antenatal care & poor reproductive education. Calcium supplementation has been shown to produce significant Blood Pressure reduction in pregnant women with low dietary calcium intake [39].The objective of this review is to evaluate the effect calcium supplementation during pregnancy in reducing maternal hypertensive disorders and related maternal and neonatal mortality and morbidity in developing countries. Calcium supplementation (2gm per day) reduces the risk of pre-eclampsia. Specific objectives of the study are :

1. To assess the effect of supplementation of calcium of hypertensive disorder of pregnancy.
2. To assess the effect of supplementation of calcium on maternal death & serious morbiditie like Eclampsia, ARF, DIC, HELLP syndrome etc.
3. Effects of calcium supplementation on foetal out come specially preterm birth.

MATERIALS AND METHODS

This study was conducted among the pregnant women attending outpatient department of Obstetrics and Gynecology, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar.

PARAMETERS OF STUDY :

- Clinical blood pressure check up.
- Body height and weight measurement.
- Urinary albumin estimation by dipstick method.
- Serum and urinary calcium level.
- Liver function test.
- Oedema.
- Hb%, BT, CT, platelet.
- Serum uric acid.
- Retinal changes.
- Any medical problems.
- USG findings.
- HIV 1 & 2 estimation.
- VDRL test.
- Blood for Fasting and Post Prandial blood sugar, serum urea, creatinine estimation.
- Urine for sugar, pus cells, epithelial cells etc.
- Stool for ova, parasite, cysts etc.

The following parameters to be studied in the next all visits –

- BP
- Body weight
- Hb %, BT, CT, platelet.
- Routine urine examination specially albumin.
- Serum and urinary calcium level.
- USG at 20 weeks, 32 weeks, 36 weeks
- Retinal changes.
- Serum uric acid.
- Liver function test.
- Any medical problems etc.

INCLUSION CRITERIA :

1. Nulliparous pregnant mothers (18-40 years).
2. Poor nutrition.
3. Low level of education.
4. Single gestation.
5. First prenatal visit before 20 weeks of gestation.
6. Blood pressure (BP) lower than 140/90 mmHg.
7. No proteinuria detectable by a dipstick.

EXCLUSION CRITERIA :

1. Chronic hypertension, Antiphospholipid syndrome, Diabetes etc.
2. History of cardiovascular disease , nephritis or urolithiasis.
3. Hydatidiform mole, polyhydramnios, Multifetal gestation, Foetal malformation etc.
4. Abnormal weight gain.
5. Raised serum uric acid level.

CASE PROFORMA

1. Name
2. Age
3. Reg. No.
4. Address
5. Occupation
6. Religion
7. Date of 1st visit in the antenatal clinic
8. Date of 1st examination for this thesis work
9. LMP
10. EDD
11. Family history
12. Personal history
    - Bowel habit
    - Appetite
    - Sleep

- Urine
- Food habit
- Any addition present or not
- Education
- Socio-economic condition
- Treatment

General Survey:

- Patient is conscious, cooperative and intelligent or not.
- Height
- Weight
- Facieses
- Built
- Nutrition
- Pallor
- Cyanosis
- Jaundice
- Oedema
- Pulse
- BP
- Respiratory rate
- Temperature
- Local examination
- Systemic examination

RESULTS

We found that overall 9.9% (24 of 262 women) of preeclampsia developed in both study and control group in which 5.7% (7 of 123 women) in study group and 13.7% (19 of 139 women) developed in control group and this difference statistically significant (Chi-squares = 4.65, df =1, p = 0.031).

A higher percentage of eclampsia detected in control group (36.84%) than the study group(28.57%).

The table depicts that majority of women (study group-71.5% , and control group-66.9%) belong to the age group of 19-25 yrs. The mean ± SD of age in study and control group were 22.86 ± 4.16 and 23.61 ± 4.45 years respectively.

It shows that 57.7% preeclampsia patient belongs to the lower socioeconomic status and it is less common in upper middle (11.5%) and upper class (3.8%).

It shows that most of the preeclamptic mothers (65.38 %) have no education in both study and control groups. Education of Primary school and high school or more are noted in 23.07% and 11.53% of cases respectively.

This table describes different medical complications in both study and control groups. The diseases like malaria (1.14%), typhoid (1.90%), common cold (3.1%), and diarrhea (2.67%) are unrelated to preeclapmsia. IUGR (5.72%), reduced liquor (7.25%), and retinal changes (2.29%) are common manifestations in preeclampsia. The general medical problems and problems in preeclampsia were found in a very few case coincidently.

The table describes different modes of delivery. vaginal delivery was noted in maximum cases(53.84%). LSCS (26.92%) and forceps delivery (19.23%) were the other modes of delivery.

Overall 9.9% (24 of 262 women) of preeclampsia developed in both study and control group of which 5.7% (7 of 123 women) in study group and 13.7% (19 of 139 women) in control group and this difference is statistically significant (Chi-squares = 4.65, df =1, p = 0.031).

There was only 2.43% (3 of 123 women)of preterm delivery in study group and 7.91% (11 of 139 women) in control group. So, there was a significantly lower risk of preterm delivery in the study group (p = 0.049).

In study and control groups the duration of pregnancy was almost same (the mean ± S.D. duration of pregnancy for the study and control group were 38.02 ± 1.25 and 38.08 ± 1.26 weeks respectively and it is statistically significant(p = 0.0042).

The mean birth weight was significantly greater in the study group (2900 ± 313.48) when compared to control group (2775 ± 277.69) (p = 0.038).

IUGR was found in 3.25% and 9.35% of women in study and control groups respectively. The incidence is more higher in control group when compared to study group (p = 0.045).

Stillbirth also reduced in study group (2.43%) than control group (5.03%) (p = 0.27).

Mean systolic Blood pressure (SBP, mmHg) in study group was 130.03 ± 10.68 and in control group was 132.15 ± 14.55(p < 0.0001). Diastolic Blood Pressure (DBP, mmHg) in study and control group were 81.44 ± 8.65 and 83.94 ± 12.54 respectively (p = 0.0009).

Most of the Pre-eclampsia patients are asymptomatic. Only 8 patients developed symptoms in both group. The common symptom of preeclampsia patient both in study and Control group are headache (15.38%). Frequency of visual disturbances and upper abdominal pain are less common only 11.53% and 3.84% respectively.

It shows that there is no significant difference of Family History of PIH in Preeclampsia Patient between Study (28.57%) and Control (26.31%) Groups.

The mean value of serum uric acid level of the preeclamptic mothers of both the groups at 20 wks, 40 wks or at the time of delivery was 3.65 mg/dl and 4.78 mg/dl respectively. In Normal Pregnancy it was always below 4.5 mg / dl.

CONCLUSION

The effect of calcium supplementation on prevention of pre-eclampsia has been a matter of several clinical trials in recent years. The majority of these trials have proven to have favorable effects for calcium supplementation during pregnancy. This study also demonstrated that a daily dose of 2 g of calcium can reduce the occurrence of pre-eclampsia (5.7% in study group compared to 13.7% in control group ; p = 0.03).

At the same time calcium supplementation also reduces the occurrence of eclampsia in study group (28.57%) compared to control group (36.84%).

Our study shows that most of the pre-eclampsia patient (57.7%) belongs to the low Socioeconomic status and they have no education (65.38%) in both group.

Low calcium intake may cause high blood pressure by stimulating either parathyroid hormone or renine release, thereby increasing intracellular calcium in vascular smooth muscle and leading to vasoconstriction. A possible mode of action for calcium supplementation is that it reduces parathyroid release and intracellular calcium and so reduces smooth muscle contractility. By a similar mechanism, calcium supplementation could also reduce uterine smooth muscle contractility and prevents preterm labour and delivery. Calcium might also have an indirect effect on smooth muscle function by increasing magnesium levels.

Our study also proved that ,2g calcium supplementation reduces the both systolic ($p < 0.0001$) and diastolic ($p = 0.0009$) blood pressure and also prevent the preterm delivery ($p = 0.04$) in study group.

In this study, we measured duration of pregnancy and infant's birth weight among the two groups of study and control group. A favorable effect both on infant birth weight ($p = 0.038$) and duration of pregnancy were seen in our study confirming other studies. At the same time, IUGR ($p = 0.045$) and Stillbirth ($p = 0.27$) also less in study group.

In the light of our observation, calcium intake is beneficial for both women and child. Daily supplementation with 2 grams if calcium during pregnancy significantly reduced the risk of pre-eclampsia and preterm labor in women with a baseline daily dietary calcium intake of less than 1000 mg. So, calcium should be supplemented to all women during pregnancy in developing countries.

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ORIGINAL & CLINICAL RESEARCH

Serum Procalcitonin Levels in Patients of Sepsis, Severe Sepsis and Septic Shock

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ABSTRACT

INTRODUCTION : Procalcitonin (PCT) is one of the recently described bio –markers in rapid diagnosis of severe sepsis. However the reported sensitivity and specificity of PCT varied among studies and the results fromt the oriental populations were scanty . The objective of this study was to determine the usefulness of serum Procalcitonin level determination in diagnosis of infections in patients admitted in intensive care units.

MATERIAL AND METHODS : This was a prospective observational cohort study ,which was conducted in medical Intensive Care Unit (ICU) of Patna Medical College Hospital between May ,2015 and October,2016 to determine the blood Procalcitonin level as a marker of early diagnosis and differentiation in patients with SIRS and sepsis, in comparison to other parameters and markers.

RESULTS : A total of 33 patients were recruited in this study . The mean age was 61 years with nearly 1:1 male to female ratio. The commonest offending organisms and involved systems in sepsis in ICU in this cohort were Gram negative micro organisms and respiratory tract infections respectively.The positive likely hood ratios (LR) of sepsis in ICU were 4.242 ($p= 0.032$), 5.711 ($p=0.016$)and 8.550 ($p= 0.023$) with PCT > 0.1 ng /ml, PCT > 0.5 ng /ml and PCT > 5 ng /ml respectively. Good discriminative power of PCT as a test for diagnosing severe sepsis and septicaemia in ICU (AUC of ROC – curve 0.78 -0.90) were also demonstrated.

In patients of severe sepsis ,at serum PCT cut off point of !.23 ng /ml ,the sensitivity and specificity was 89.5 % and 71.4 % respectively.

CONCLUSIONS : Our study demonstrated the consistent usefulness of PCT in diagnosis of severe sepsis and septicaemia in ICU patients.

BACKGROUND

Epidemiology of Sepsis:

The definitions of systemic inflammatory response syndrome(SIRS),sepsis, severe sepsis, septic shock and multiple organ dysfunction syndrome were first introduced by American College of Chest Physicians[ACCP] and Society of Critical Care Medicine(SCCM) in 1992(1).Sepsis was defined as SIRS with infection. Severe sepsis was sepsis with some degree of organ dysfunction i.e. cardiovascular, respiratory, renal, haematological or unexplained metabolic acidosis.

Septic shock was defined as sepsis with

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Study of Maternal & Foetal Outcome with Mode of Delivery in Case of Breech Presentation

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INTRODUCTION

Breech presentation is the commonest malpresentation where the lie is longitudinal, the podalic (or pelvic) extremity of the fetus is situated at the brim, the cephalic extremity at the fundus and the denominator is the sacrum.

Breech presentation is often a challenge to the obstetrician and perinatologist from the baby's point of view – with unique problems all over the world, particularly in India where facilities for hospitalization and intensive neonatal care units are limited.

Breech presentation is also one of the most interesting subjects in obstetrics as no other malpresentation has so many manoeuvers during vaginal delivery and their impact on perinatal mortality. The mode of delivery also depends on so many variables like parity, type of breech presentation, associated obstetric complications estimated birth weight etc. and also from obstetrician to obstetrician.

Breech presentation are of two types :

1. Complete breech (flexed breech) – where both hips and knees are flexed (commonly found in multigravida).
2. incomplete breech -
   a) Frank breech or breech with extended legs (commonly found in primi gravida) – here thighs are flexed but legs are extended.
   b) When thighs are extended but legs are flexed this is known as knee presentation and when thighs are extended and legs are also extended - this known as footling presentation.

Breech is also classified as i) complicated breech – when some other obstetric complications like APH, Toxaemia of pregnancy, contracted pelvis, post Caesarean section pregnancy is associated. Mostly this cases are delivered by Caesarean section operation, ii) Uncomplicated breech – when no other obstetric complication is associated with breech.

In over 50% cases, the aetiology of breech presentation is not known. During the second and early third trimester of pregnancy the ratio of intrauterine volume to the size of foetus is large allowing considerable foetal mobility. Thus prematurity is the most common known cause of breech presentation. Other contributory factors are multiple pregnancy, hydrocephalus, abnormal uterine shape, placenta praevia, polyhydramuion, feotopelvic disproportion, pelvic tumours, and cornufundal insertion of placenta. Congenital malformations of the uterus also causes breech presentation and may be responsible for recurrent breech presentation.

Breech presentation is an obstetric abnormality with intrinsic risk of five times more perinatal loss over cephalic presentation even in expert hands, the difficulty being failure to assess exact foetal mass and to ascertain foeto-pelvic relationship. Cervical dilatation is often poor and there is an inherent danger of cord prolapse following premature rupture of membranes. Further, breech presentation is complicated with prematurity, higher rate of congenital abnormalities, higher perinatal morbidity rate, birth asphyxia etc.

AIMS AND OBJECTIVES

The present study has therefore been undertaken to evaluate the following aims :

1. Factors should be taken into account before deciding the mode of delivery.
2. To observe the foetal outcome.
3. To observe the maternal outcome.

For better understanding of the problem, the study of various aspects of breech presentation, the ultimate goal of this study is to reduction of perinatal mortality and maternal morbidity and mortality.

MATERIALS AND METHODS

The cases for present study was collected from the antenatal ward and labour rooms, labour paying ward, labour general ward of Department of Obstetrics and Gynaecology, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar. Foetus weighing 1000 gm or more was included in this study. Multiple pregnancy where the first baby presented a breech was not also included in this study.

Methods

Thorough clinical and obstetrical examination

Age, parity, history and outcome of previous pregnancies gestational age was analysed.

Assessment of bony pelvis by clinical examination.

ECV not carried out.

Estimation of size of baby by both clinical palpation and ultrasonography. With ultrasonography placental location and congenital anomalies are to be evaluated.

Closed obstetrical supervision of delivery and outcome to be noted.

Aetiological factors if detected – its association with mode of delivery.

Close observation of mother and baby during stay at hospital after delivery.

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Proforma

SL. No:-
Date-
Unit-
Registration No.-
Patient profile
Name –
Age-
Address-
Occupation-
Socio- economic Condition-
Education-
Date of admission-
Date of Examination-
Parity-
LMP-
EDD-
Booked /Unbooked-
Chief Complaints:

Past obstetric History:-

NO. Year
Complication during pregnancy
Labour events
Puerperium
Child
Family History:
Physical Examination.

General Examination

Pallor
Jaundice
Oedema
Pulse
B.P
Height
Weigh
Respiratory System
Cardiovascular system

Per abdomen examination

Fundal height
Lie-
Presentation –
Engagement-
FHS
Amount of liquor

Pervaginal examination

Os- Dilatation
Cervix - Effacement
Membrane
Presenting part
Station
Adequacy of pelvis
Discharge

Investigations.

Hb%, ABO grouping, Rh Typing
Blood sugar : Fasting, Post prandial
HIV I & II
HBsAg
Anti HCV
VDRL
T3, T4, TSH
R/E of urine

USG for confirmation of presentation and well being

Management

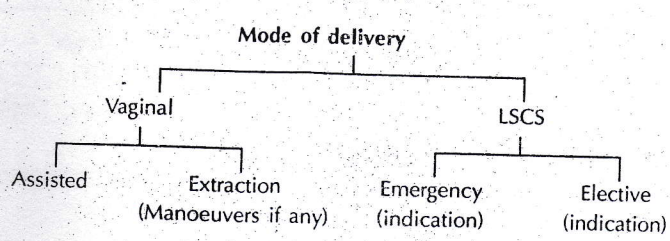
Complicated / Uncomplicated breech.

Labour Note-

Total duration of labour
Drug used
Complication if any
Foetal out come.
Apgar score- 1minute 5 minutes
Congenital anomaly-
Birth weight-
Date and time of birth
Foetal injury if any-
Foetal morbidity/ mortality.
Maternal morbidity / mortality

RESULTS

Total number of deliveries were 7101. Therefore, the incidence of breech presentation was 1.4%. Total perinatal mortality was 32 (30.1%). Booked cases in this series were 60.3% and unbooked cases were 39.6%. Majority of cases 56.6% were primigravida. To find out the aetiological factors of breech presentation, in a good number of cases (58.4%) the aetiology is unknown. Other aetiological factors were prematurity 30.1%, IUFD 6.6% etc. 83 cases delivered vaginally (78.3%) and 23 cases (21.6%) were delivered by caesarean section. Out of 83 cases of vaginal breech deliveries 73 cases had assisted breech delivery, 6 cases had spontaneous breech delivery and 4 cases had breech extraction. The corrected PNM in the above mentioned three groups were 11.5%, 20% and 50% respectively. The babies born by spontaneous breech delivery were grossly premature. So, we can conclude that assisted breech delivery was the commonest as well as safe method for conducting vaginal breech delivery. 32 cases were pre-term i.e., of less than 37 weeks of gestation. Perinatal mortality among these cases was 68.7%. Among the 23 cases of caesarean section 13 cases were of elective and 10 cases were of emergency operation. Commonest indication being post-caesarean pregnancy. Caesarean section was preferred as the method of delivery in cases of complicated breech. Babies weighing more than 3000 gm out of 11 cases 8 cases were preferred to be delivered by caesarean section. Babies weighing less than 2000 gms (21 cases) were preferred to be delivered vaginally as there was limited neonatal care facilities available in our institution. Perinatal mortality among these cases was 80.9%. Gross perinatal mortality among the caesarean section cases was 8.6% and corrected PNM 4.3%. Perinatal mortality in the babies of primigravida was 23.3% and in multipara the rate was 39.1%. Perinatal mortality in booked and unbooked cases were 18.7% and 47.6% respectively. In spite of modern operative technique and antibiotics, the incidence of maternal morbidity in patients having caesarean section was 100% whereas in vaginal delivery that was only 16.8%.



CONCLUSION

Foetal loss in breech delivery is 5-6 times higher than in non-breech delivery. Most of the patients are admitted in hospital after the onset of labour. Lack of preventive and social obstetrics in rural areas, transport difficulties, illiteracy, poor socio-economic status of the patients – all these factors are responsible for promoting such high percentage of perinatal mortality. To combat with such vast amount of perinatal mortality prevention should start at the grass root level. First of all any associated risk factors like hypertension, diabetes mellitus etc. is to be identified and these cases will be termed as 'complicated breech'. The line of management of those cases should be completely different than uncomplicated ones.

Present study suggests that breech delivery should preferably be always managed in the hospital by skilled and experienced obstetrician in collaboration with a paediatrician and an anaesthetist. As good number of babies were premature a good premature care unit should be pre-managed under the supervision of a paediatrician.

Besides setting specialist facilities for neonatal and maternal care, we have to extend the light of literacy, upliftment of life style and health conscious through proper utilisation of primary health care systems as all these factors are intermingled together with an inseparable bond.

Regarding mode of delivery, many obstetrician now feel that there is no 'right' or 'wrong' method of delivery. So it is the best way to explain to the mother the possible consequences of both mode of delivery and let her choose the way she wants. But in our set up where patients are less educated and where the infrastructure is not well equipped, it is better to perform caesarean section in good number of cases and vaginal delivery only in selected cases.

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Clinical Study of Teenage Pregnancy

Dr. Preeti Singha[1], Dr. K. Vibha[2], Dr. Abha Sinha[3]

ABSTRART

One hundred fifty cases of teenage pregnancy (study group) and one hundred fifty cases of pregnancy between ages 25 years (control group) were studied. The pregnancy related problems like anaemia, pregnancy induced hypertension, abnormal presentation, preterm labour, antepartum haemorrhage, instrumental deliveries, caesarean section and perinatal outcomes were evaluated.

INTRODUCTION

Inspite of increased literacy rate and legal bindings, the incidence of teenage pregnancy in India is still high, more so in rural areas, as early childbearing is still socially accepted.

In view of the considerably high incidence of teenage pregnancy and the variable opinions in terms of complications, it has been considered worthwhile to carry out a study on the topic so as to throw a light on measures to minimize the complications.

MATERIALS AND METHODS

150 cases of teenagae pregnancy between the ages of 13 to 19 years (study group) and 150 cases of pregnancy similarly matched in terms of parity in the age group of 20-25 years (control group) were analysed for antenantal, intrapartum and postnatal parameters and the perinatal outcome.The results were compared. Both coked and unbooked cases were included.

RESULTS

The incidence of teenage delivery was 6.47 percent. There was no unmarried mother in either of the groups. The maximum number of cases in the teenage group belonged to the age group of 17-19 years, the youngest being 14 years old in this series. Maximum number of cases were primigavidae in both the groups. 12 percent of the study group and 29.34 percent of the control group were booked.

As shown in Table - I incidence of anaemia was slightly more in the teenage group (68%) than control group (63.32%). Incidence of preterm labour was more in teenager (11.99%) in comparison to control (4.67%) at P value <0.05, which is significant.

The overall incidence of pregnancy induced hypertension (PIH) was 20.66 per cent in teenagers whereas it was 11.33 per cent in the control group (Table -II).The incidence was significantly more in teenage group at P value <0.05.

Complications like anaemia, PIH, preterm labour were found more in the teenage group at P<0.01, highly significant.

There was no significant difference in the incidence of different foetal presentations in the two groups. Gestational age at delivery for both groups is depicted in table-III.

Regarding the mode of delivery, there was higher incidence of instrumental delivery in the study group (5.33 per cent) compare to the control group (1.33 per cent). No significant difference in the rates of vaginal and caesarean section delivery was observed.

There were no significant differences in the duration of labour and third stage complications in both groups.

The incidence of low birth weigaht babies <2500 g in the teenage group (23.01 percent) was higher than that in the control group (16.44 per cent) at P value <0.01.

Regarding Apgar score of the live born babies, 9.52 per cent in the study group and 3.33 per cent in the control group had Apgar score <7 at one minute.

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The perinatal morality was 7.22 per cent in the study group and 4.59 per cent in the control group. Most of the perinatal deaths were found in unbooked cases. The common cause of perinatal death were prematurity and pregnancy induced hypertension.

There were no significant differences in maternal and the perinantal mortalities in the both groups.

DISCUSSION

The incidence of teenage delivery in the present series was almost similar to the findings of other authors (Table - IV),[1,2,3,4]

Only 12 per cent of the teenagers received adequate antenatal care compared to 29.33 percent in the control in the present studies. In the studies of Sen[2], Ghosh and Ghosh[5], Osbourne et al[6], the number of teenagers receiving adequate antenatal care was less in comparison to control group.This lack of habit of patients in attending prenatal clinic may be due to poor socio economic status and inadequate knowledge of pregnancy and antenatal care.

The incidence of anaemia was slightly higher in the teenage mothers (68%) than that of control group (63.32 per cent). The higher incidence of anaemia may be because of improper antenatal care and malnutrition. Chhabra[7] found the incidence of anaemia in the study and control group as 70 percent and 61 percent respectively, which corellates well with this study. Proper antenatal care with timely investigations and treatment of the causative factor and supplementation with iron and other haemopoetic factors can correct the anaemia.

Author	Year	Incidence (%)
Boschner[1]	1962	4
Sen[2]	1975	8.2
Panchauri and Jamshedji[3]	1983	5.1
Pal et. Al.[4]	1986	7.6
Present series	1995	6.4

The incidence of pregnancy induced hypertension was higher in the teenage group (20.66 %) than in the control group (11.30 per cent). 3 per cent of teenagers and 2 percent of the control had eclampsia in the present series.The finding of the present series was almost similar with those of Sen[2], Chhabra[7] and Perkins et al.[18] The present study showed the incidence of pregnancy induced hypertension significantly higher in the teenage group in comparison to those in control group (P<05).

Complication	Study group No. of cases	Percentage	Control No. of cases	Percentage
Anaemia	102	68	95	63.32
PIH	31	20.66	15	10
Preterm labour	18	12.00	7	4.67
Placenta praevia	1	0.66	1	0.66
Abruption placenta	1	0.66	0	0
Type of PIH	**Study group No. of cases**	**Percentage**	**Control No. of cases**	**Percentage**
Preeclampsia	28	18.66	15	10.00
Eclampsia	3	2.00	2	1.33
Total	31	20.66	17	11.33
Gestational age in weeks	**Study group No. of cases**	**Percentage**	**Control No. of cases**	**Percentage**
<37 weeks	18	11.99	7	4.67
37 weeks or more	132	88.00	143	95.33

Preterm labour was significantly higher in the study (11.99 per cent) than control group (5.99 percent) (P<0.05). Incidence of the preterm labour in the present study in teenage pregnancy was comparable with the fincings of Ghosh and GhoshM 4.97 per cent, Chaabra[7]-14 per cent and Biswas and Goswami[9]-15.3 per cent.

In the present series, the incidence of preterm labour in the study group was two times than that of control group. The probable causes are pregnancy induced hypertension, anaemia, malnutrition and lack of adequate prenatal care.

No significant difference in the frequency of occurrence of placenta praevia and accidental haemorrhage was observed between the teenagers and control group in the present study. Sen[2], Ghosh and Ghosh[5] also did not find significant difference in the frequency of occurence of placenta previa and accidental haemorrhage between the teenage and control group.

The incidence of abnormal presentation was not high amongst the teenagers in the present series which was consistent with that of other authors like Ghosh and Ghosh[5], Chhabra[7] and Yungs et aP .

The incidence of instrumental delivery (forceps and ventouse) was higher in teenagers (5.33 percent) than that of control (1.33 per cent) in the present scries. The incidence of forceps application was high the series of Yungs et al[10]42 per cent. But, most of the Indian authors had shown low incidence of instrumental delivery in the teenagers[7,11].

There were no significant difference in the incidence of caesarean section and duration of labour in the both groups in the study. Perkins et al and Biswas, Goswami also observed similar duration of labour in teenage pregnancy and other pregnancy in their studies[83].

There was no significant difference in the third stage complications in the present series. Panchauri and Janshedji also recorded no significant difference[3].

In the present study, the incidence of low birth weight babies less than 2500 gms in the teenage group (23.01 per cent) was higher than in the control group (16.44 per cent). The P value of low birth weight babies in teenage mothers was highly significant at <0.01. Dwyer found 16.9 per cent of teenage mothers, delivering low birth weight babies.[12]

The Apgar score of <7 was found in 9.52 per cent teenagers and 3.33 percent of the control respectively in the present study, which was statistically significant (P<0.05). However, Osbourne et al[6] noted no difference in Apgan score in study and control group.

The present study has shown a slightly higher incidence of perinatal mortality in the teenage group (7.22 per cent) than the control group (4.59 per cent) but statistically

insignificant (P>0.05). Ghosh and Ghosh[5] observed slightly higher incidence of perinatal mortality in teenagers (10.40 per cent) than control group (6.36 per cent). Panchauri et al[3], Osbourne et al[6] and Perkins et al[8] noted no significant difference in perinatal mortality in the different age groups where as Biswas and Goswam[9] had reported a lower incidence of perinatal mortality amongst the teenaged mothers.

The main causes of perinatal mortality were prematurity and pregnancy induced hypertension in the present series which tallies with the fincings of Sen[2] and Ghosh and Ghosh[5].

CONCLUSION

Incidence of teenage pregnancy is still considerably high inspite of increased literacy and legal bindings.

Pregnancy in teenage women should be considered as a high risk because of remarkably increased incidence of pregnancy induced hypertension, preterrh labour, low birth weight babies and higher perinatal mortality. Teenage pregnancy, therefore, demands close supervision by obstetricians and good neonatal care by neonatologist for babies. On the other hand, the number of teenage pregnant women seeking for antenatal care is comparatively low which may also account for the significantly increased incidence of complications. Better antenatal care is most likely to reduce the magnitude of the complications. Hence, adequate antenatal care should be stressed on as indispensable through all possible machineries for teenagers who are pregnant for a better outcome. However.what is more important is to prevent or at least to minimize teenage pregnancy as far as possible by increasing social awareness through better education and also by implementing the legislation that is existing.

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Magnesium Sulphate in the Management of Eclampsia : A Clinical Study

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ABSTRACT

This study included 16 patients of eclampsia. Magnesium sulphate (Pritchard Regime) was advocated in the treatment of eclampsia. Pregnancy outcomes in terms of caesarean section rate, maternal and perinatal mortality were assessed.

INTRODUCTION

Hypertensive disorders of pregnancy particularly eclampsia remains one of the important unsolved problems in Obstetrics. It accounts for major cause of maternal and perinatal deaths. Fortunately maternal mortality due to eclampsia has fallen in the last two decades. The reported overall maternal mortality was 11.8% and perinatal martality was 36.3%[1]. With the introduction of magnesium sulphate for the management of eclampsia the foetal salvage rate is 90% and maternal mortality is almost zero[2,3]. Magnesium sulphate in addition to being a cerebral depressant, causes vasodilation which results in some fall in blood pressure also.

The aim of this study was to analyse the pregnancy outcomes of eclampsia treated with magnesium sulphate.

MATERIALS AND METHODS

Pregnancy outcomes in terms of caesarean section rate, maternal mortality and perinatal mortality were evaluated.

Soon after admission, the information was noted in every patient regarding age, parity, socioeconomic status, gestation period, antenatal care received, time and place of fits, and treatment taken outside prior to admission.

A thorough physical examination, fundus and systemic examination were carried out. Routine investigations - Hb, blood urea, creatinine, serum uric acid, ABO grouping, Rh type BT, CT were carried out in each patient. Input and output chart was maintained. Magnesium sulphate therapy was instituted and for diastolic blood pressure more than 110 mg. nifedipine was used to control hypertension.

Any recurrence of fit was noted. Induction or acceleration of labour was done whenever required by artificial rupture of membrene or intracervicai dinoprostone or oxytocin drip. Labour progress was monitored. Modes of delivery, perinatal mortality, maternal morbidity and mortality were recorded.

RESULTS

Over the study period, there were 7935 deliveries and the number of eclampsia were 16 giving an overall 'rate of 0.2%. The epidemiological profile of the eclampsia is depicted in table I. The ratio of primigravidae to multiparous patients were 68.7% to 31.3%. Teenage pregnancy constituted 50% of the eclampsia patients. Most of the patients (81 .1 %) have come from rural areas. Unbooked cases who have received no antenatal care at all or has antenatal visit less than three accounted for 87.5% of the patients.

In this study (table - II) antepartum eclampsia predominated (56.3%) over intrapartum and post partum eclampsias.

After initiation of therapy, 87.5% of the patients have no fit and fit recurrence was 1 2.5%. Majority of the patients 56.25% delivered vaginaily without using any aids and 1 8.7% of patient delivered by ventouse. The caesarean section rate was 25%. There were no maternal death and perinatal mortality rate was 18.75%. Good Apgar scores at 1 min. were observed in 66.6% of the babies (table - IV).

DISCUSSION

Until recently, the treatment of eclampsia varied throughout the world and had never been subjected to a randomised controlled trial to assess whether it was of benefit either as prophylaxis or in the treatment[1]. But, a large multi centre study has shown that magnesium sulphate is superior to both phenytoin and diazepam[4].

This study reaffirms the efficacy of magnesium sulphate thereapy in eclampsia. Magnesium sulphate as a cerebral and myometrial depressant has the advantage of causing little or no foetal depression. Good Apgar score was observed in majority (66.6%) of the babies in this study.

Convulsion recurred in 12.5% in this study as compared to 12% and 21% recurrent rates reported by other authors[3,5]. In this study, the incidence of caesarean section was 25%. Majhi et al[6] and Pal et al[7] reported 12.52% and 9.7% of caesarean rates.

Table I : Epidemiological profile of cases

Factors	Numbers	Percentage
Age in years		
<20	8	50
20-25	2	12.5
25-30	1	6.25
30-35	1	6.25
>35	2	25
Parity		
Primigravida	11	68.75
2nd gravida	3	18.75
3rd gravid	0	-
4th gravid or more	2	12.5
Residence		
Urban	3	18.75
Rural	13	81.25
Religion		
Hindu	11	68.75
Muslims	3	18.75

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Others	2	75
Antenatal care		
Booked	2	12.5
Unbooked	14	87.5

Table II : Types of Eclampsia

Types	Number	Percentage
Antepartum	9	56.3
Intrapartum	1	6.3
Postapartum	6	37.5

Table III : Modes of delivery

Modes	Number	Percentage
Vaginal	12	75
a) Normal	9	56.25
b) Ventouse	3	18.7
Caesarean section	4	25

Table IV : Foetal outcome

Total delivery	16
Live born	15
Apgar score	
>7	10(66.6%)
5-7	2(13.3%)
<5	3(2.3%)
Intra uterine foetal death	1(6.2%)
Neonatal death	2(12.5%)
Prinatal mortality	187.5/1000 births

Many centres are liberal to do more abdominal deliveries in expectation of better maternal and foetal outcome[1,8]. Liberalisation of caesarean section has been possible in practice due to marked improvement in anaesthesiology.

Leitch et al[1] reported overall maternal mortality rate for women with eclampsia to be 11.8%. Pritchard and Pritchard reported zero maternal mprtality rate with magnesium sulphate[9]. There was no maternal death in this study. Eclampsia is also a major cause of perinatal death worldwide. The collaborative Eclampsia Trial found the incidence of perinatal mortality from 224 to 307 per 1000[4]. Douglas and Redman found perinatal mortality rate of 56 per 1000[10]. In our study, eclampsia is still associated will perinatal mortality rate of 187.5 per 1000.

CONCLUSION

Eclampsia still remains a serious problem in developing countries Perinatal mortality rate is still disappointing. This reflects the very late referral and morbid condition of the patients reported to our labour ward. Lack of modern amenities for foetomaternal monitoring as well as absence of optimal neonatal intensive care facilities in the labour ward could contribute the results obtained. Nevertheless, magnesium sulphate therapy is found very effective in the management of eclampsia.

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ORIGINAL & CLINICAL RESEARCH

Study of Cervical Changes with IUCD

Dr. Preeti Singh[1], Dr. K. Vibha[2], Dr. Abha Sinha[3]

ABSTRACT

The study was carried out in 250 cases of 15-40 years of age group using IUCD and 100 cases of the same age group who did not opt for IUCD were selected as control. The aim of this study was to evaluate whether the use of IUCD can cause any cytological changes of the cervix or initiate dysplastic changes or enhances the grade of already existing dysplasia of cervix. Our study has shown that prolonged uninterrupted use of IUCD does not provoke any significant dysplasia, premalignant and malignant changes in the cervix except inflammatory change due to infection and irritation. The high rate of inflammation may be related with the release of copper by the device.

KEYNOTE : IUCD (Intra-uterine contraceptive device).

INTRODUCTION

Current universal interest in family planning and control of worldwide population explosion necessitates development of an effective and safe method of contraception. IUCD is probably the most commonly used safe, effective, inexpensive and reversible method. Various workers have given different opinions regarding the efficacy, acceptability and effects of long-term use of IUCD while white discharge, vaginal bleeding and pelvic infections are the accepted complications. Its possible intricate relationship with the incidence of carcinoma of cervix has been a matter of great dispute and curiosity.

MATERIALS AND METHODS

250 cases of the age group between 15-40 years using IUCD were selected as study group and 100 of the same age group who did not use IUCD were selected as control group from the Gynaecological O.P.D. and Post-Partum Clinic (P.P. Clinic). After taking detailed history for each individual, they were examined thoroughly for any systemic, obstetrical and gynaecological findings. Prior to insertion of different types of IUCD devices such as Cu-T 200, Multiload 250 and Zicoid 350, cervical smears were taken. The smears were immediately fixed in ethyl alcohol (95%) and examined after staining by modified Papanicolaou's technique (Koss, 1979).

RESULTS

Table 1 : Age distribution of the cases in IUCD users

Age in yrs	User group		Non-user group	
	No. of cases	(%)	No. of cases	(%)
15-20	25	10	24	24
21-30	200	80	55	55
31-40	25	10	21	21
Total	250	100	100	100

The youngest women using IUCD in this study was 19 years while the oldest was 40 years. The maximum number of women opting for IUCD was between the age group of 21-30 years, 200 (80%) of the total.

Comparison of the cytological finding of IUCD users and non-users of the same age group within the same period of study shows that the incidence of the inflammation was more in IUCD users 130 (52%) than non-users 32 (32%). Different grades of dysplasia were noticed in 12 cases out of which mild dysplasia was found in 8 (3.3%) and moderate 4 (1.6%) in users. Among the non-users 4 dysplasia smears, 3 (3%) mild and 1 (1 %) moderate were detected. No severe dysplasia and no carcinoma in situ were detected.

Incidence rate of inflammation was found maximum 128 (55.4%) amongst the IUCD users after six months of the application of the device.

DISCUSSION

In our study, maximum users in'IUCD, 200 (80%) cases, belong to the age group of 21-30 years. The youngest of the IUCD user was 19 years and oldest was 40 years. The finding corresponds with that of Rastogi (1988)[1] who studied 200 IUCD users and youngest to be 20 years while the oldest was 40 years. Again, observation of Deshmukh et.al.[2] (1985) agrees with our findings. In their study the youngest women using Cu-T was 19 years while the oldest was 40 years.

In this study, comparison of the cytological finding of IUCD users and non-users of the same age groups within the same period of the study show that the incidence of inflammation was more in IUCD users 128 (55.4%) than the non-users (32 (32%). Different

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Table 2 : Comparison of cytological findings of IUCD users and non-users

Smears	User group		Non-user group	
	No. of usres	Percentage	No. of cases	Percentage
Negative	108	43.2	64	64
Inflammatory	130	52.0	32	32
Mild dysplasia Moderate dysplasia	8 4	3.2 1.6	3 1	3 1
Severe dysplasia	-	-	-	-
Carcinoma in situ	-	-	-	-
Total	250	100	100	100

Table 3 : Cytological findings in relation to duration of IUCD users

Duration (month)	Total no. of cases	Negative	Inflammatory dysplasia	Mild dysplasia	Moderate
1	240	120	111 (46.2%)	7 (2.9%)	2 (0.8%)
3	186	75	102 (54.8%)	8 (4.3%)	1 (0.57%)
6	231	92	128 (55.4%)	8 (3.4%)	3 (1.2%)
12	208	102	98 (47%)	6 (2.8%)	2 (0.96%)
18	201	150	48 (23.88%)	2 (0.9%)	1 (1.49%)
24	98	65	32 (32%)	-	-

grades of dysplasia were noticed in 12 cases out of which mild dysplasia was found in 8 (3.2%) and moderate in 4 (1.6%). Among the non-users, 4 dysplastic smears were detected, of which 3 (3%) were mild dysplasia and 1 (1%) was moderate. The cytological screening of IUCD users in the present study has displayed absence of any neoplastic changes in cervix although dysplastic changes have been noticed. This corresponds with that of Mishra et.al. (1977) who observed in 461 women using IUCD found moderate dysplasia in the age group 35-40 years. Our study observation is similar to that of Deshmukh et.al. (1985) where they compared cytological findings of IUCD users (55.6) than in the non-users. In our study, the incidence of cervical inflammation was found maximum 128 (55.4%) amongst the IUCD users after 6 months of application of the device. The high rate of incidence of cervical inflammation may probably be related with the release of copper by the device. However, prolonged uninterrupted used of IUCD declines the inflammation which can be explained due to diminish release of copper.

CONCLUSION

Prolonged uniterrupted use of IUCD does not provoke any significant dysplasia, premalignant and malignant changes in the cervix, inflammation due to infection and irritation. The high rate of inflammation may be related with the release of copper by the devices and the inflammatory smear tends to decline with prolonged use of the device as release of copper is diminshed. It is of the view that for successful implementation of the family planning programme, a careful selection of cases and regular clinical follow-up for early detection of any pathological change should be undertaken, so that appropriate line of treatment can be given in time. If any progressive cytological change is noted, the case should be thoroughly investigated with histopathological examination of the affected cervical tissue.

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