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Study of Evaluation of Maternal Side Effects and Neonatal Outcome after Treatment with Nifedipine at Tertiary Care Hospital

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Abstract

Introduction: Compared to beta- agonists, nifedipine is associated with improvement in neonatal outcome. Nifedipine is significantly more successful in prolonging pregnancy beyond 48 hours and effective in delaying upto 7 days.

Methodology: The present study was conducted in the department of obstetrics and gynaecology of Rural Medical College , Loni, The present work comprises of 135 cases between 28 to 37 weeks of gestational age having premature labour pains that were admitted in antenatal ward or labour room.

Results: Distribution of cases according to NICU admission of preterm baby. For observation total 9 cases were kept in NICU, 3 cases were admitted in NICU for jaundice, at 1 was admitted for birth asphyxia.

Conclusion: This study on tocolytic effect of nifedipine in preterm labour shows, nifedipine has good tocolytic action on arresting preterm labour with minimal side effects.

Keywords: Preterm labour, neonatal morbidity, nifedipine

Introduction

Compared to beta- agonists, nifedipine is associated with improvement in neonatal outcome. Nifedipine is significantly more successful in prolonging pregnancy beyond 48 hours and effective in delaying upto 7 days. Recent studies have suggested that calcium channel blockers specifically nifedipine is considered relatively safe for use in pregnancy.[1,2]

Some authors have proposed that nifedipine, could be used as first line tocolyic agent. The most recent substantial update of the Conchrane review regarding calcium channel blockers for acute tocolysis in preterm labour included 12 randomised control trials (10 using nifedipine) involving 1029 patients.[3] This review concluded that, when compared with any other tocolytic agent (mainly beta-mimetic), calcium channel blockers (mainly nifedipine) reduce the risk of delivery within 7 days of initiation of treatment and delivery before 34 weeks of gestation with improvement in some clinically important neonatal outcomes such as respiratory distress syndrome, intraventricular heamorrhage, necrotizing enterocolitis and neonatal jaundice. [4, 5] A study on tocolysis and preterm labour showec that there appears to be a place for short-term tocolysis to gain time so that corticosteroids can be administered to enhance fetal lung maturation and reviewed the effectiveness and complications of different tocolytic agents. The rationale of this study is to demonstrate the efficacy and safety of nifedipine as a tocolytic agent in preterm labour.[6,7, 8]

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Material and methods

The present study was conducted in the department of obstetrics and gynaecology of Rural Medical College, Loni, The present work comprises of 135 cases between 28 to 37 weeks of gestational age having premature labour pains that were admitted in antenatal ward or labour room. The study was approved by the IEC . The sample size was estimated with the help of expert using online sample size estimation calculator.

Inclusion criteria:

- Gestational age between 28weeks to 37 weeks
- Presence of regular uterine contractions 4 in 20 minutes or 8 in period of one hour
- Cervical dilatation > 1 cm
- Primigravida as well as multigravida
- Exclusion criteria:
- Systemic diseases like diabetes mellitus, cardiac disease, liver or renal disease, hypotension
- Obstetric complication like hypertensive disorder of pregnancy, antepartum haemorrhage, PROM
- Multifetal gestation
- Foetal complications like chorioamnionitis, congenital malformations, IUGR, fetal distress, intrauterine death.

Pregnant women presenting with preterm labour and those fulfilling inclusion and exclusion criteria will be admitted. A detailed history, complete physical examination and routine investigations, obstetric ultrasound will be done for all patients. All women will be screened for urinary tract infections/bacterial vaginosis with mid-stream clean catch urine sample & a high vaginal swab respectively and antibiotic treatment will be instituted.

Results

Table 1: Distribution of Cases as Per Nicu Admission of Newborn

	Frequency	Percent
birth asphyxia	1	0.7
Jaundice	3	2.2
No	122	90.4
Observation	9	6.6
Total	135	100.0

Table 2: Distribution of Cases as Per Preterm/Term Delivery.

	Frequency	Percent
late preterm	17	12.6
preterm	26	19.3
term	92	68.1
Total	135	100.0

Table 3: Distribution of Cases As Per Apgar Score

	Frequency	Percent
APGAR 1 min		
6	15	11.1
7	120	88.9
Mean ± SD	6.88±0.31	
APGAR 5 min		
8	20	14.8
9	115	85.2
Mean ± SD	8.85±0.35	

The above table shows distribution of cases according to APGAR at 5 min and 10 minutes.

Table 4: Distribution Of Cases As Per Nicu Admission Of Newborn

	Frequency	Percent
birth asphyxia	1	0.7
Jaundice	3	2.2
No	122	90.4
Observation	9	6.6
Total	135	100.0

The above table shows distribution of cases according to NICU admission of preterm baby. For observation total 9 cases were kept in NICU, 3 cases were admitted in NICU for jaundice, at 1 was admitted for birth asphyxia.

Discussion

Babies born preterm have an increased risk of morbidity , some are directly related to immaturity, as with hyaline membrane disease due to lack of pulmonary surfactant, and retinopathy of prematurity due to the excessive use of oxygen. Preterm birth may also be a marker for other problems that produce disease such as fetal infections and systemic inflammation, which are associated with intracranial hemorrhage, cerebral palsy, cerebral white matter

damage, and chronic lung disease which include bronchopulmonary dysplasia[9].

In present study, side effects noted are distributed as, 3 % had headache, 20.3% had hypotension and 18 % had tachycardia, while 3% nausea, Similarly the study conducted by Gulati A[10] depicted 4 % had headache, 24 % had hypotension, 76 % had tachycardia, and 4% had nausea, and 4 % flushing.

In present study 17.8% of the cases had birth weight between 1 kg to 2 kg, while 82.2 % had between 2 kg to 3 kg.

Similarly in study conducted by Dhawle et el [151] 60.5 % had birth weight upto 2.5 kg. In our study, 0.7 % had birth asphyxia, 2.2 % had jaundice and 6.6 % were admitted in NICU for observation. In study conducted by Dhawle et al [11] 11. 6 % had birth asphyxia, 48.8 % had neonatal jaundice and 11.6 % were admitted in NICU care.

In present study, 99.3 % vaginal delivery followed by 0.7% with LSCS, as obstetric complications in like pre-eclampsia, heart disease, PROM are in exclusion criteria, which resulted in less number of cesarean section. In study conducted by Hangekar, mode of delivery only 2 cases (5.26%) underwent cesarean section whereas rest delivered vaginally.[12,13]

Conclusion: This study on tocolytic effect of nifedipine in preterm labour shows, nifedipine has good tocolytic action on arresting preterm labour with minimal side effects.

Ethical clearance:

For present study ethical clearance was obtained from our IEC , Pravara Institute of Medical Sciences (DU) Loni .

Source of support: Nil

Conflict of interest: Nil

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