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PRETERM LABOUR PREVENTION BY NIFEDIPINE

Obstetrics & Gynaecology

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ABSTRACT

Aim: Preterm labour can be prevented by calcium channel blocker Nifedipine thus improving perinatal morbidity and mortality.
Objective: 100 patients in the PMCH labour ward are given oral nifedipine for prevention of preterm labour and its effect studied. Aim of the study is to prevent preterm labour.
Study design- A randomized, prospective study was conducted in the department of OBGY, PMCH, Patna from September 2017 to December 2019. 100 patients with preterm labour due to different causes were given oral nifedipine in the standard doses and its effect studied in term of prevention and prolongation of labour as well as feto-maternal outcome.
Results -there was significant prevention and postponement of preterm labour after Nifedipine administration in almost all patients with previous studies using nifedipine for prevention of preterm labour.

KEYWORDS

INTRODUCTION

Global incidence of preterm labour is 9.6% of all live births as per WHO (2005). Developing countries like Africa and south east Asia contribute to the hight burden in terms absolute number. It is a significant cause perinatal mortality and morbidity. Complications of preterm labour include respiratory, gastrointestinal, immunological, CNS, cognitive, behavioural and growth problems. A wide variety of etiological factors have been implicated in causation of preterm labour, although in large majority of patients have no definite cause can be found. The most evident of these factors include obstetric complications and past obstetric history. Others, like socioeconomic status and nutritional status can be contributory.

Nifedipine -nifedipine has prominent smooth muscle relaxant property. It is the prototype Dihyropyridine (lipophilic) group of calcium channel blocker. Its acts on voltage sensitive L-type (long lasting current) channels in uterine musculature and thereby decreases the intracellular availability of calcium ions and causes uterine relaxation. Nifedipine is metabolized in the liver and excreted in metabolized in the liver and excreted in the urine. half-life ranges from 2-6 hours.

MATERIALS AND METHODS

Study on tocolysis in preterm labour by Nifedipine was conducted in OBGY department of PMCH, Patna from September 2012 to December 2019. 100 women of preterm labour were randomly selected from the labour ward.

Inclusion criteria

1. USG showing normal fetus.
2. Gestation age of 28 to 37 weeks.
3. No previous administration of tocolytics.
4. Cervical length less than 25 mm.
5. Regular uterine contraction at least 4 in 20 minutes.
6. Patients willing for study and monitoring.

Exclusion criteria

1. Systemic diseases like diabetes mellitus, cardiac and renal disorders
2. Obstetric complications like hypertension disorder of pregnancy, cholestasis etc.
3. Chorioamnionitis
4. Cervical dilatation more than 4 cm
5. IUGR
6. Congenital anomalies.

Permission from the ethical committee of the college was taken. All women meeting the eligibility criteria were properly informed about the aims of study those who agreed to participate signed a consent form. A detailed history was taken and all these patients in preterm labour were kept in observational area where continuous monitoring was possible. Under aseptic precautions general examinations, systemic examination, per speculum examinations and per vaginal examination were done. All investigations like CBC, KFT, LFT, USG were done. In those with leaking liquor sample was sent for culture and sensitivity.

Two doses of betamethasone (12 mg 24 hours apart) were administered to all cases.

Prophylactic antibiotic- ceftriaxone was given to all patients, Oral nifedipine was given in doses of 30 mg (10 mg every 20 minutes for 3 doses) stat, followed by 10 mg every 8 hours, if there were contractions. Treatment was continued till contractions ceased.

Monitoring was done by measuring maternal pulse, blood pressure, uterine contractions and fetal heart rate. Initially it was done at 15 minutes interval for first 2 hours for 6 hours and then every 2 hours for 6 hours and finally at 6 hourly intervals for 48 hours. Treatment was discontinued if -there was-

1. Fall in BP <90/60 mmHg, postural hypertension
2. Pulse >100/ mint
3. Premature rupture of membrane
4. Headache
5. Persistent uterine contraction even after 48 hours
6. Signs of fetal distress.

Side effects like dizziness and nausea were noted.

Treatment was discontinued if uterine contraction subsided and tocolysis was achieved for more than 48 hours as it is considered sufficient for action of administered steroids to decrease respiratory complications in premature neonates and for transfer to well-equipped centre for further management of preterm neonate .After contractions stopped patients were reviewed weekly till they delivered.

Observations

1. Age distribution of patients- Age of the 100 patients ranged from 18 to 35 years

Table 1

Age in years	Number	Percentages
18-19	10	10%

20-24	44	44%
25-29	32	32%
30-35	14	14%

2.Fetal presentations

Table 2

Presentations	Numbers	percentages
cephalic	92	92%
breech	8	8%

3.Cervical effacement at time of admission

Table 3

Cervical effacements	Number	Percentages
25%	34	34%
50%	40	40%
X75%	26	26%

4.Cervical dilatations at time of admission

Table 4

Cervical dilatations in cm	Number	Percentages
<1 cm	28	28%
1cm	34	34%
2cm	19	19%
3cm	19	19%

Factors considered in inclusion criteria

Table 5

Risk factors	Numbers	Percentages
• Cervical length<25mm	36	36%
• Gestational age at time of presentations		
28-30weeks	40	40%
30-32 weeks	42	42%
33-34weeks	31%	31%
35-37 weeks	17	17%
• Parity		
Primigravida	53	53%
G2	21	21%
G3	26	26%
• Antenatal care		
Booked case	38	38%
Unbooked case	62	62%
• History of preterm labour		
Yes	22	22%
No	78	78%
• Gestational age at delivery		
29-32 weeks	4	4%
32-35weeks	46	46%
35-38weeks	30	30%
>38weeks	20	20%
• Duration of prolongation		
0-7days	12	12%
7-21days	38	38%
21-35days	36	36%
35-49days	141	4%
• Side effects		
Dizziness	3	3%
Nausea	5	5%
• Mode of delivery		
Vaginal	71	71%
LSCS	29	29%
• Fetal outcome		
Stillbirth	3	3%
NICU admission	2	2%
Birth weight<2.5kg	73	73%
Birth weight>2.5 kg	27	27%
• Apgar score		
<5 at 1min	39	39%
>5 at 1min	61	61%

Time needed for tocolysis -2-12 hours, mean 4.55 hours

DISCUSSIONS

The study was prospective analysis. The results were statistically analysed and compared to data available in already published literature. Majority of patients were 20-24 years of age. Most patients were unbooked. Primigravida constituted 53% of total majority of patients included in the study did not give history of preterm labour in previous pregnancies. Only 22% cases gave the history. 36% had short cervix (<25 mm). gestational age at time of admission ranged from < 1 cm in 28% cases to 3 cm in 19% cases. 26% cases had cervical effacement above 75% at the time of admission. Bishop score was < 4 74% cases while 26% cases has bishop score > 4%.36% patients had prolongation of pregnancy by 3-5 weeks. Meantime needed for tocolysis was 4.55 hours. Regarding mode of delivery ,71% had vaginal delivery while 29% underwent LSCS.

APGAR score at 1 minutes (average) 5.730 and at 5 minutes was 6.770. birthweight was < 2.5 kg in 73% cases NICU admission was only 2%3% had stillbirth.

In our study active tocolysis effects ie treatment to delivery time was categorized into two groups-delivery within 48 hours of tocolysis and that beyond 48 hours. when delivery was within 48 hours of administration of nifedipine, it was categorised as treatment failure. In our study 8% were in this group, where preterm labour could not be stopped. It was seen that nifedipine was successful in prolonging pregnancy beyond 48 hours even in women with advanced cervical dilatation> 3 cm. tocolytic effect of oral nifedipine was found to be effective in terms of acute tocolysis, low maternal complications , good neonatal outcome and low preterm delivery rate with good prolongation of pregnancy up-to 49 days in 14% cases.

Nifedipine was also found to be safe, easy to use, with good neonatal outcome and minimal side effects.

CONCLUSIONS

The result of our study with nifedipine matched with data available in previous studies. In view of safety, efficacy, acceptability, ease of usage and neonatal outcome, nifedipine is a wonderful drug for prevention and treatment of preterm labour.

The rapid and effective action obtained with nifedipine, its simplicity of administration and safety suggest that nifedipine has major contribution in management of preterm labour.

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