

## Nifedepin Tocolysis for Preterm Labour



### Medical Science

**KEYWORDS :** Preterm Labour, Nifedepin, Tocolysis.

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### ABSTRACT

*Preterm labour is defined as any delivery before 37 completed weeks of gestation from the first day of last menstrual period. A preterm labour increases perinatal morbidity & mortality. Various drugs are being used as tocolytics to prolong pregnancy. We are using calcium channel blocker Nifedepin as tocolytic since last 3 years.*

*Material & method: We have analyzed 60 cases of preterm labour in whom Nifedepin was used as tocolytic. These were the patients with singleton pregnancy between 24 to 34 weeks of gestation having two contractions of 20 seconds in 10 minutes with cervical dilatation less than 3 centimeters, cervical effacement less than 30% & intact membranes. On admission after detail examination 30 mg loading dose of Nifedepin was given orally. Patients were monitored for pulse, blood pressure & arrest of contractions. If there was no tachycardia and/or hypotension & contractions were arrested. Capsule Nifedepin retard 20 mg was given 12 hourly for 7 days. Outcomes monitored were duration of prolongation of pregnancy, time taken for complete relaxation of uterus, recurrence of contractions if occurred & side effects. Injection Dexamethasone was given for fetal lung maturation..*

*Results: 48.34% patients had complete relaxation of uterus in 6-12 hours. In 73.34% patients pregnancy was prolonged for 1-2 weeks. In our study in 2 patients Nifedepin was not successful & preterm delivery occurred within 24 hours. Side effects seen were tachycardia in 11.66% patients, headache was seen in 15.0% patients, 10% patients had hypotension & 1.66% patients had palpitation. These findings were comparable to previous authors.*

*Conclusion: from this we conclude that Nifedepin is safe, effective as tocolytic. The drug is easy to administer & monitor.*

**Introduction:** Preterm labour is defined as any delivery prior to 37 completed weeks of gestation from the first day of last menstrual cycle<sup>1</sup>. Greek word tokos means birth & lytic means capable of dissolving so the drugs which are capable of suppressing uterine contractions were named tocolytics<sup>1</sup>. A preterm labour increases perinatal morbidity & mortality. Premature neonate faces increased morbidity due to sepsis, intraventricular hemorrhage, respiratory distress syndrome, broncho pulmonary dysplasia, necrotizing enterocolitis and retinopathy of prematurity<sup>2</sup>. The event causes emotional as well as economical stress for the family and the mother. Despite the availability of risk identification measures & prevention strategies avoidance of preterm labour remains a challenge for Obstetricians. The available treatment modalities are mainly to arrest preterm labour with tocolytics & steroid administration for fetal lung maturation.

The main aim of treatment is to prolong labour at least for 48 hours with tocolytics in order to achieve lung maturation of fetus by steroid administration, & if necessary patient can be transferred to a well-equipped center with neonatal intensive care unit<sup>3</sup>. The available drugs for tocolysis are beta sympathomimetic, calcium channel blockers, oxytocin antagonist, NSAIDs, Magnesium sulphate etc.

We are using Calcium channel blocker "Nifedepin" as tocolytic in Preterm labour cases since last 3 years. We have analyzed 60 cases where Nifedepin was used as tocolytic.

**Material & method:** Patients who were diagnosed to have preterm labour by history and examination were included in the study.

**Inclusion criteria :** Gestational age between 24 to 34 weeks, two contractions of 15 to 20 seconds in 10 minutes, cervical dilatation less than 3 cms, effacement less than 30% & intact membranes.

**Exclusion criteria:** Premature rupture of membranes, chorioamnionitis, IUD, congenitally malformed fetus incompatible with life, severe preeclampsia / eclampsia, antepartum hemorrhage, fetal distress, severe oligohydramnios, severe in-

trauterine growth restriction.

Once preterm labour was diagnosed & patient's baseline pulse & blood pressure noted loading dose of 30 mg Nifedepin was given orally. Patients pulse, blood pressure & contractions were monitored every half an hour for two hours. If patient's contractions were arrested and patient was stable then Capsule Nifedepin retard 20 mg was given after 2 hours and continued every 12 hourly for 7 days. After 2 hours patients were monitored hourly for 2 hours, & then 2 hourly for 6 hours. Drug was withheld if systolic blood pressure was 100 mmHg or less and /or pulse rate above 120 beats per minute or uterine activity persisted.

On admission Injection Dexamethasone 8 mg intramuscular 3 doses were given 8 hourly for fetal lung maturity. Broad spectrum antibiotic (like Capsule Ampicillin-cloxacillin combination 500 mg 6 hourly) was given orally for five days. Close monitoring was done for side effects like hypotension, tachycardia, flushing, palpitation, headache, nausea. If side effects were seen drug was withdrawn.

#### Outcomes monitored:

- Time taken for complete uterine relaxation.
- Recurrence of contractions if occurred.
- Duration of prolongation of pregnancy.
- Side effects.

**Results:** Total 60 patients were given Nifedepin as tocolytics, their outcomes have been studied.

**Table1: Distribution of patient as per gestational age:**

Gestational age in weeks	Number	Percentage
24-27	15	25 %
28-31	35	58.33 %
32-34	10	16.66 %

From table 1 it is clear that maximum number of patients (58.33%) were between 28-31 weeks of gestation.

**Table 2: Number of contractions in 10 minutes on admission**

Number of contractions/10 minutes	Cases	Percentage
1	22	36.67 %
2	13	21.66 %
2-3	25	41.67 %

Table 2 shows 41.67% of patients had 2-3 contractions in 10 minutes.

**Table 3: Cervical dilatation on admission:**

Cervical dilatation in centimeters	Cases	Percentage
0- 2 cms	37	61.66 %
2-3 cms	23	38.34 %

From table 3 we can see that 61.66% patients had cervical dilatation between 0 to 2cms.

**Table 4: Time taken for complete relaxation from loading dose:**

Time taken for relaxation	Cases	Percentage
< 6 hrs	19	31.67 %
6-12 hrs	29	48.34 %
12-24 hrs	10	16.66 %
No relaxation	2	3.33 %

**Table 5: Prolongation of pregnancy**

Prolongation of pregnancy in weeks	Number of cases	Percentage
≤1 week	2	3.33 %
1-2 weeks	44	73.34 %
1-3 Weeks	12	20.0 %
Delivered within 24 hours	2	3.33 %

In table 4 we can see 48.34% patients required 6-12 hours for complete relaxation. Table 5 shows in 73.34% cases pregnancy was prolonged for 1-2 weeks

**Table 6: Side effects**

Side effect	Cases	Percentage
Tachycardia	7	11.66 %
Hypotension	6	10 %
Palpitation	1	1.66 %
Headache	9	15.0 %

11.66% patients had tachycardia, 10.0% patients had hypotension, 1.66% suffered from palpitation & 15 % had headache.

**Discussion:** Nifedepin is a calcium channel blocker. This drug inhibits the calcium ion transfer through the myometrial cell membrane. This group of drug decrease intracellular free calcium concentration and induce myometrial relaxation<sup>4</sup>. RCOG guidelines advocate use of calcium channel blockers for tocolysis<sup>5</sup>. Nifedepin is easily available, cheap, easy to administer so preferable to use in all settings. Many authors have done studies with Nifedepin as tocolytic in comparison with placebo or other drug.

Author Iffat Ara & Hasina Banu in their trial of Nifedepin with placebo found Nifedepin effective in postponement of labour in 77.8 % subjects for 48 hours to 7 days<sup>6</sup>. In the study of Nifedepin as tocolytic by Dr.Lele & Dr.Tambe in 84% patients complete relaxation was achieved in 24 hours; & the mean prolongation of pregnancy was 2.4 weeks<sup>7</sup>. In our study about 48.34 % cases required 6-12 hours for complete relaxation. & in 74.34% cases pregnancy was prolonged for 2 weeks. These results are comparable to previous authors. In our study in only 2 cases Nifedepin was not successful & preterm delivery occurred within 24 hours. Both of these patients had history of previous second trimester spontaneous terminations.

In our study 15% patients had headache, tachycardia was seen in 11.66 % patients, hypotension in 10.0 % patients & transient palpitation was observed in 1.66% patients. Author Dr.Lele & Dr.Tambe<sup>7</sup> in their study have reported tachycardia in 18.5% case, hypotension in 16.7%, headache in 38.9%, flushing in 24.1% & palpitation in 31.5%.

Author Iffat Ara & Hasina Banu<sup>6</sup> in their study have reported maternal side-effects were less in the Nifedepin group, 22 patients (44.7%) had no side-effects; 18 patients (40%) complained of flushing and rest 7 patients (15.6%) had head-ache and vertigo; the placebo group had no side-effects. Our results were comparable to other authors. These results show that Nifedepin is safe and quite effective.

As Nifedepin is administered orally which is easy route & monitoring does not require special skills, we feel Nifedepin can safely be used as tocolytic.

**Conclusion:** Calcium channel blocker Nifedepin is quite safe & effective drug as a tocolytic to postpone pregnancy for 48 hours to 2 weeks. This drug does not cause serious side effects & is easy to monitor.

## REFERENCE

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