Original Research Article

Compare the efficacy of oral nifedipine versus intravenous isoxsuprine as tocolytic in arresting preterm labour

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Abstract

Introduction: Preterm labour is the leading cause of neonatal mortality and morbidity.it accounts for 75-80% of perinatal mortality and morbidity. The goal of tocolysis is to cause cessation of uterine contractions, arrest the preterm labor for at least 48 hours so that fetal pulmonary maturity is attained with the use of corticosteroids. **Aims:** To compare the efficacy of Oral Nifedipine versus intravenous isoxsuprine as tocolytic in arresting preterm labour. 2.To compare the side effects of Oral Nifedipine versus Intravenous Isoxsuprine. **Materials and methods:** A prospective study of Oral nifedipine versus intravenous Isoxsuprine for arresting preterm labour was carried out in the department of Obstetrics and Gynaecology during the period of two years. A total number of 100 cases of preterm labour were taken and grouped equally. **Results:** 92% cases remained undelivered (successful tocolysis) at 48 hrs in nifedipine group compared to 76% of cases in Isoxsuprine group**.** Maternal side effects were noticed in 26% of patients in Nifedipine group, most common side effect being Headache, compared to 50% in Isoxsuprine group most common side effects being Hypotension and tachycardia. Mean birth weight in Nifedipine group was 2.27±0.49 compared to 2.24±0.49 in Isoxsuprine group**.** Percentage of Neonatal complications in nifedipine group was 32 % compared to 52% in isoxsuprine group, which is statistically significant**. Conclusion:** In this study it was found that oral Nifedipine has fewer and less serious side effects as compared to I.V Isoxsuprine. Moreover I.V Isoxsuprine requires intensive monitoring of the patients.

Keywords: oral Nifedipine, I.V Isoxsuprine, Tocolysis

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Introduction

In the present scenario of modern obstetrics, where there has been a rapid advancement in all specialties, preterm labour still remains challenge for the obstetrician today and is the leading cause of neonatal mortality and morbidity. The magnitude of the problem is evident from the fact that after exclusion of genetic and anatomic defects, it accounts for 75-80% of perinatal mortality and morbidity. Perinatal mortality among preterm Indian babies has been reported to be 2-7 times higher than term babies. Preterm labour & delivery is one of the biggest challenges for obstetricians and so are the preterm babies for the pediatricians. Incidence of preterm labour and delivery shows increasing trends in countries where data is available .Preterm delivery is greater in developing countries (23.3% in India) [1] and it accounts for 40–75% of neonatal deaths. It could be due to assisted reproductive techniques, psychosocial stress, or medically induced prematurity.

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With the adventure of newborn special care units, there have been dramatic improvement in neonatal survival rates of preterm infants (>90%) but neonatal intensive care is very expensive. So Preterm labour is not only a medical and social problem, but also an economic one.Prediction and prevention of preterm labour is not possible despite extensive research on the subject. So, we have to face preterm labour and manage our patients according to their gestational age. Tocolysis means pharmacological inhibition of uterine contractions. The goal of tocolysis is to cause cessation of uterine contractions arrest the preterm labor for at least 48 hours so that fetal pulmonary maturity is attained with the use of corticosteroids. Commonly used corticosteroids are Betamethasone 12 mg of 2 doses administered intra muscularly 24 hours a part or 4 doses of 6mg of dexamethasone administered intramuscularly 12 hours apart. Conservative management of the patients with threatened preterm labour with tocolytics will reduce the neonatal morbidity, mortality and the cost of neonatal care [2].

According to RCOG guidelines, 2002, tocolysis may not be reasonable in every case of spontaneous preterm labor, however, use of tocolytic should be considered in women most likely to benefit from it like those who are still very preterm, those needed transfer of a woman to a center with neonatal intensive care units or those who have not at completed a full course of corticosteroid to promote fetal lung maturity [3]. Currently, the most commonly used tocolytic agents are Beta-adrenergic agonists and calcium channel blockers.

Evidences show that both these drugs are equally effective in suppression of preterm labor, however Nifedipine is gaining its popularity because of its efficacy, easy availability and limited number of side effects. Isoxsuprine is a long acting non selective beta –adrenergic receptor agonist that has been used as a tocolytic for past many decades .Others beta agonists that are in practice are ritodrine, terbutaline and salbutamol. Its acts by stimulation of the beta–receptors in the uterine smooth muscle and causes relaxation. It has direct smooth muscle relaxant property as well. Nifedipine is a type 2 dihydropyridine calcium channel blocker , that inhibits flow of calcium across L type slow channels of cellular membrane and primarily causes smooth muscle relaxation .Unlike type 1 agents ,it has minimal activity in cardiac conducting system. It causes reduction in the basal tone , amplitude and frequency of uterine contractions whether they are spontaneous or induced by oxytocin or prostaglandins[3]. Hypotension and tachycardia was reported with the use of this drug but was less common compared to other beta-agonists. No deleterious fetal effects were noted and there was no difference in the still birth and neonatal death rate. Preterm labour before 34 weeks needs to be arrested for at least 48 h so that fetal pulmonary maturity is attained using betamethasone/ dexamethasone. Beta-adrenergic receptor agonist Isoxsuprine hydrochloride and calcium channel blocker Nifedipine are two commonly used tocolytic agents in India. This study is done to compare their efficacy and analyze the overall outcome of preterm labour using tocolytics in a tertiary care center.

Materials and methods

A prospective study of Oral nifedipine versus intravenous Isoxsuprine for arresting preterm labour was carried out in the department of Obstetrics and Gynecology of Kakatiya Medical College. During the period of June 2019 to may 2021(two years). A total number of 100 cases of preterm labour were taken and grouped equally. Those cases which were clinically diagnosed as preterm labour as per the ACOG criteria patients were selected randomly after inclusion criteria are fulfilled. The selected patients were randomized either to Group A treated with oral Nifedipine, and Group B treated with Intravenous Isoxsuprine.

Inclusion Criteria

Gestational age between 28 -37 weeks, Painful uterine contractions of 4 in 20 minutes or 8 in 60 minutes and each lasting for more than 40 seconds, Intact membranes, Effacement of ≥ 80% and Cervical dilatation >1cms.

Exclusion Criteria

Chorioamnionitis, Documented ruptured membranes, Fetal distress, Medical contraindications to Isoxsuprine or Nifedipine**,** Heart disease causing moderate to severe functional impairment., Liver and Renal diseases, Intra uterine Fetal demise, Lethal Fetal congenital malformations,Multifetal gestation and Obstetric complications (Antepartum hemorrhage. Preeclampsia ,eclampsia)

Methodology

The selected subjects were randomly assigned in to two groups. Group A and Group B .To cases in group A oral nifedipine were given in dose of 30mg loading dose , this is followed by 10mg 6 hourly for next 48 hours and followed by Nifidipine 10mg 12 hourly for 1 week. and an equal number of study subjects enrolled in group B were given intravenous isoxsuprine in dose of given Isoxsuprine 20 mg intravenous infusion with 4-5micro drops/min for 48 hrs, followed by oral 10 mg 8th hourly for 1 week . When a case of preterm labour meeting the inclusion criteria was admitted, detailed present and past obstetric history were taken. Vital baseline parameters like pulse, BP, temperature were recorded. Detailed per abdomen, per speculum and per vaginal examinations were done.

Investigations or interventions done as a part of this study .Haemoglobin %, Complete blood count, Blood grouping and typing, Random Blood Sugar, Urine routine and culture sensitivity, High vaginal swab for culture and sensitivity and Ultrasonography

1.Half an hourly abdominal palpation to note frequency and strength of contractions.

2. Pulse, BP, Fetal heart rate monitoring. every Half an hourly.

3. Close monitoring for any side effects like maternal tachycardia, hypotension,palpitation ,headache, flushing.

Treatment was discontinued, if there is maternal tachycardia greater than 120 beats/minute, drop of blood pressure 15 mm of Hg or more from baseline diastolic pressure, fever more than 100^{0}F or premature rupture of membranes. When contractions subsided for 48 hours, patients were discharged and assessed antenatally every week until delivery. Treatment was considered successful if uterine contractions subsided and tocolysis is achieved for more than 48 hours. All patients received injection Betamethasone 12mg IM 24 hours apart 2 doses. Antibiotics were given to cases having significant pathogen count in urine or vaginal culture accordingly Goal of tocolysis was to delay delivery for 48 h and till 37 completed weeks of gestation in patients with intact membranes. Tocolysis was considered failed if uterine quiescence is not achieved despite maximum dose. Patients, in whom delivery will be delayed for at least 48 h, were taken as cases of primary success. Patients were followed till delivery and data were recorded about side effects that patients developed during the treatment, time interval between admission and delivery and neonatal outcome. After delivery placenta was examined and the neonates were evaluated for gestational age, birth weight, congenital anomalies, APGAR score at 1 and 5 minutes. The babies were shifted to NICU if needed. These babies were followed up for perinatal complications during the hospital stay.Statistical analysis of 100 cases was done using Chi- Square test and Epi-Info software was used for statistical calculation

Results

Table 1: Variables distribution of patients studied

Age in years	**Group A**		**Group B**	
	No	%	No	%
<20	14	28	15	30
21-30	32	64	33	66
31-40	4	8	2	4
Total	50	100	50	100
Mean ± SD	23.74±4.65		23.00±3.70	
Unbook/ Booked				
Unbooked	12	24.0	10	20.0
Booked	10	20.0	20	40.0
Booked Elsewhere	28	56.0	20	40.0
Parity				
Primi	24	48	23	46
G2	16	32	19	38
G3	4	8	4	8
>/=G4	6	12	4	8
Gestational Age at Presentation				
28-30.6	14	28	8	16

31-33.6	27	54	29	58
34-36.6	9	18	13	26
Gestational age at Delivery in weeks				
28-30.6	0	0.0	4	8.0
31-33.6	10	20.0	14	28.0
34-36.6	32	64.0	15	30.0
37+	8	16.0	17	34.0

Most of the preterm presenting patients were between 20- 30 yrs age group, The two groups were age matched with P=0.384.
preterm presentation patients were in Nifedipine group mostly Booked elsewhere as in Isoxsuprine group were Booked and Booked else where
Cluster of preterm presenting patients were Primi and Gravida 2 in both the groups.
In both the groups maximum number of patients presented in between 31-33.6 wks. of gestation, *with* $\chi 2$=37.45; P<0.00001.
Most Patients in group A delivered between 34 to 36.6 wks. and in group B >37 wks. , but in Group A patients delivered <33.6 wks. were less compared to Group B ,with $\chi 2$ -28.1 and p value of <0.00001making the results significant.

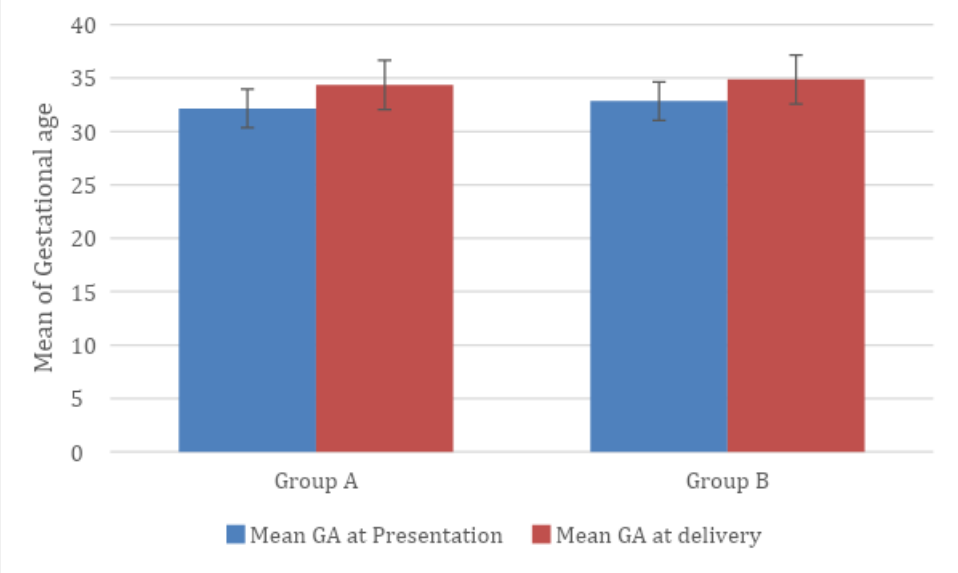

Fig 1: Comparison of Gestation age in weeks at presentation and at delivery

Mean gestational age at presentation and delivery in both the groups were almost similar.

Table 2: Prolongation of pregnancy (days) and mode delivery in study

Prolongation of pregnancy (days)	**Group A**		**Group B**	
	No	**%**	**No**	**%**
<2.0	4	8	12	24
3-7	21	42	11	22
8-14	6	12	9	18
15-21	6	12	5	10
22-28	5	10	8	16
29 days or more	8	16	5	10
Total	50	100	50	100
Mean ± SD	20.16±14.09 days		13.98±11.03 days	
Success and failure rates				
Failure (<2.0days)	4	8	12	24
Success (>/= 2 days)	46	92	38	76
Mode of delivery				
VD	32	64	34	68
LSCS	18	36	16	32

Prolongation of pregnancy (days) is significantly more in Group A compared to Group B(20.16 days vs 13.98 days) with P=0.016, Significant , Student t test It is clear from the table that more patients had successful tocolysis in group A compared to group B, and vice versa more failure in group B compared group A. With $\chi 2$=9.52; P=0.002.Distribution of Mode of delivery is statistically similar in two groups with $\chi 2$=0.35; P=0.55

Table 3: Apgar score in two groups studied

Apgar score	Group A (n=50)		Group B (n=50)		P value (Fisher Exact test)
	No	%	No	%	
1 min					
<7	32	64.0	32	64.0	1.000
≥7	18	36.0	18	36.0	
Mean	5.92±0.90		5.92±1.12		
5 min					
<7	0	0.0	7	14.0	0.012
≥7	50	100.0	43	86.0	
Mean	8.10±0.79		7.88±1.33		

Apgar score at 1min were statistically similar in both groups, at 5 min group B babies had less Apgar score than group A. Mean Apgar score in two groups were almost similar statistically

Table 4: Birth weight (kg) in two groups studied

Birth weight (kg)	Group A		Group B	
	No	%	No	%
1-1.49	2	4.0	1	2.0
1.5-1.99	12	24.0	18	36.0
2-2.49	18	36.0	14	28.0
2.5+	18	36.0	17	34.0
Mean ± SD	2.27±0.49		2.24±0.49	

Mean BW is statistically similar in two groups with P=0.752, Student t test

Table 5: Neonatal outcome in two groups studied

Neonatal Complications	Group A (n=50)		Group B (n=50)	
	No	%	No	%
Nil	34	68	24	48
Yes	16	32	26	52
NICU	8	16	17	42
PNM	5	10	5	10
RDS	3	6	4	8

Neonatal complications were significantly less in Group A (34.0%) compared to Group B(52.0%) with $\chi 2=8.21$;P=0.004, with more NICU admissions in group B compared to group A

Table 6: Maternal side effects in two groups studied

Maternal side effects	Group A (n=50)		Group B (n=50)	
	No	%	No	%
Nil	37	74.0	25	50.0
Yes	13	26	25	50
Flushing	0	0	1	2
Headache	7	14	4	8
Hypotension	2	4	6	12
Nausea	1	2	2	4
Skin rash	0	0	0	0
Tachycardia	3	6	12	24

Incidence of Maternal side effects is significantly more in Group B with $\chi 2=12.2$; P=0.0004, with headache and tachycardia being common in group A compared to hypotension and tachycardia in group B.

Discussion

Preterm labour remains one of the unconquered frontiers in the present era of Obstetrics. Throughout the year severity of drugs with different pharmacologic principles are used to suppress preterm labour. The choice is limited by the efficacy, safety and side effects. Preterm delivery affects 11%[4] in US or even greater in developing countries(23.3%) in India [5]. These births represent more than 70%of all perinatal morbidity and mortality. Obstetricians face the challenge of managing an established preterm labour with pharmacological agents, which differ in uterine specificity, efficacy and side effects both maternal and fetal. The mainstay of hospital therapy has been the use of tocolytic agents. Tocolytic use is justified in woman with preterm labour because they will stop contractions and preterm delivery in 75-80% of patients for 48-72hrs for steroid action which decreases respiratory distress in the neonate ultimately improving the neonatal outcome. These tocolytic drugs inhibit uterine contractions and relax the uterine myometrium by different mechanisms leading to arrest of preterm labour.

Beta-sympathomimetics act through cyclic GMP to inhibit uterine contractions while calcium channel blockers directly inhibit calcium ion influx across the cell membrane, thus decreasing the smooth muscle tone. In this study, comparison is done between two tocolytic drugs commonly used in India i.e. isoxsuprine hydrochloride (beta-agonist) and nifedipine (calcium channel blocker).

Despite improvements in obstetric care over the past three decades, the incidence of preterm birth remains unchanged. There are no accurate recent worldwide data but estimates of preterm birth range from a relative stable 5-10% in developed countries [6]. The present study shows incidence of preterm birth is 8.03% which is comparable with various s similar studies conducted by Kumar Aruna, Roy Vijay and veena B [7,8,9].

In the present study majority of patients belonged to age group between 20-30 years. In present study Mean maternal age was

23.74±4.65 years. in Nifedipine group and 23±3.70 years in Isoxsuprine group .Thus in the present study maternal age distribution is comparable with the study conducted by, Kedar et al [10] Reported it was 22±5.5 yrs. in Nifedipine group and 23.4±4.6 yrs. in Isoxsuprine group and While in Rayamajhi R[11] et al study it was 26 yrs. in Nifedipine group and 25.12 yrs. in Isoxsuprine group.

the present study maternal age distribution is also comparable with Vasundhara Padmanabhan study[12] they reported 24±3.41years in Nifedipine group and23.7±3.29 years in Isoxsuprine group .In the present study a greater number of patients belonged to primigravida and 2nd Gravida. Thus the present study is comparable with similar studies conducted by smith GN, and Goffinet F.

In the present study majority of patients belonged to gestational age between 31 to 33.6 weeks. In present study Mean gestational age at treatment is 32.16 weeks in Nifedipine group and.32.85weeks in Isoxsuprine group. Thus in the present study Mean gestational age at presentation which is comparable with similar studies conducted by Kedar et al and Rayamajhi et al. the present study also comparable with Vasundhara Padmanabhan study[62] they reported31.91weeks in Nifedipine group and 31.62weeks in Isoxsuprine group studies . The mean prolongation of pregnancy in the present study was20.16 ± 14.09 days with Nifedipine and 13.98 ± 11.03 days with Isoxsuprine [10,11].

The present study comparable with similar studies conducted by Raya Majhi R, Pratap K(2003) .He performed a comparative study between Nifedipine and Isoxsuprine in suppression of preterm labour. It was prospective randomized design to compare efficacy and safety of calcium antagonist Nifedipine with isoxsuprine reported . The mean prolongation of pregnancy with Nifedipine was 25 ± 19.85 days and that with Isoxsuprine 19.18 ± 17.82 days. The study concluded that Nifedipine is a and alternative to Isoxsuprine in suppressing preterm labour [11].

Other similar study in 2011conducted by ,Seema B Nagendrappa[13] reported Mean prolongation of pregnancy was 31.68 days in Nifedipine and 27.54 days in Isoxsuprine group which was statistically significant. the present study also comparable with Vasundhara Padmanabhan study[12] they reported Mean Prolongation of Pregnancy was 31. 8. ±37days in Nifedipine group and 27.54. ±7.38days in Isoxsuprine group .other studies are D Kalita et al [14]. (1995) compared Nifedipine and Isoxsuprine in management of preterm labour between 28 and 36 weeks. 25 patients in each group received sublingual Nifedipine and I.V Isoxsuprine. They observed that the mean duration of prolongation of pregnancy was 31.68 ± 10.2 days with Nifedipine and 23±.9.3 days with Isoxsuprine respectively, which achieved statistical significance.

Similar Indian study conducted by Singh S and Gupta K[15] observed that prolongation of pregnancy was more when the period of gestation was less , being 47.44 days at 22-24 weeks and only 10.18days at 33-36 weeks of gestation. Arati Gulati et al[16] study on Nifedipine and Isoxsuprine total, 50 cases were included (25 cases to each group)in that study between gestational ages 20-35 weeks.. The mean prolongation of pregnancy was 22 days and 13 days with Nifedipine and Isoxsuprine respectively which achieved statistical significance.

Kedar et al [10] reported Mean Prolongation of Pregnancy was 22.4 ± 15.6days in Nifedipine group and 16.5. ±14.5days in Isoxsuprine group in their studies.

Table 7:Success rate with Nifedipine in different studies

Authors	Year	Percentage
Rayamajhi et al[11]	2003	81.25%
VeenaB[9]	2009	90%
Singh Nisha[15]	2011	80%
Seema B Nagendrappa	2014	96%
Vasundhara Padmanbhan	2016	96%
Present study		92%
Success rate with Isoxsuprine in different studies		
Kumar Aruna[7]	2001	70%
Rayamajhi et al[11]	2003	68%
Seema B Nagendrappa[13]	2012	75%
Vasundhara Padmanabham[12]	2016	75%
Present study		76%

In the present study, successful tocolysis was achieved in 92%with Nifedipine group. These results were similar to those reported by Veena B et al, 90% with Nifedipine. Rayamajhi et al reported 82.15% successful tocolysis with Nifedipine and Singh Nisha reported successful tocolysis with Nifedipine 80%.And another study conducted by, Seema B Nagendrappa[13]. Indira Hanumaiah in 2012.

Success rate with Nifedipine was found to be 96% as compared to Isoxsuprine which was 75%. the present study also comparable with Vasundhara Padmanabhan study[12] they reported success rate in Nifedipine group was 96% Another study by Kedar et al[10]reported Success rates in Nifedipine group was 86%. In the present study, successful tocolysis was achieved in 76% with Isoxsuprine group. These results were similar to those reported by Kumar Aruna et al, 70% with Isoxsuprine group. Rayamajhi et al reported 68%.andYogol NS et al reported 84% with Isoxsuprine. A similar study conducted by, Seema B Nagendrappa[13] Success rate Isoxsuprine which was 75%.%. the present study also comparable with Vasundhara Padmanabhan study they reported success rate in Isoxsuprine was 75% one study conducted by Kedar et al[10] reported success rate in Isoxsuprine group was 76% .Maternal side effects in our study are Flushing, headache, dizziness, nausea (6.5%)**,** Transient hypotension (decrease in systolic BP of 15 mm of Hg and diastolic BP of 10 mm of Hg) with an associated increase in pulse of 10 b/min may occur. The maternal side effects observed in present study were Headache (14%) and tachycardia(6%) which were comparable with study conducted by Veena B. Maternal side effects less in present study compared to Rayamajhi et al[11] study except Headache. No significant change in BP was observed with Nifedipine group in our study that necessitated discontinuation of therapy, as exhibits greater selectivity for inhibition of uterine activity to cardiovascular effects. Clinical trials with Nifedipine have reported either an insignificant decrease in blood pressure or no change in maternal heart rate or transient hypotension, which resolves spontaneously in most patients without evidence of prolonged maternal and foetal symptoms.Similar study conducted by Kedar et al[10] in 1999 reported Maternal side effects in Nifedipine group Tachycardia(23%) Hypotension (20%), Headache(30%) ,Flushing (40%) ,Nausea(10%). Nifedipine has been compared with Ritodrine in an open randomized multicentre study by Papatsonis DNM et al. (2000)[12]. The investigators followed 185 pregnant women diagnosed with preterm labour who received either oral Nifedipine or I.V Nifedipine has been compared with Ritodrine in an open randomized multicentre study by Papatsonis DNM et al. (2000) [17].The investigators followed 185 pregnant women diagnosed with preterm labour who received either oral Nifedipine or I.V Ritodrine. They found that Nifedipine prolonged delivery time than Ritodrine and Maternal side effects such as nausea, vomiting, tachycardia and anxiety were severe and caused discontinuation in 13% of women treated with Ritodrine. Nifedipine was not discontinued in any subjects. Nifedipine was considered to be more successful in halting labour than either Ritodrine or no treatment.

Nifedipine did not show sustained tachycardia in mothers. Maternal side effects such as nausea, vomiting, tachycardia and anxiety were severe and caused discontinuation in 13% of women treated with Ritodrine. Nifedipine was not discontinued in any subjects.

Maternal side effects with isospin are, hypotension, tachycardia, headache nausea, vomiting are common side effects**.** Other side effects are Cardiac or cardiopulmonary arrhythmias, pulmonary oedema, myocardial ischemia, Metabolic hyperglycemia, hyper insulinemia, hypokalemia, antidiuresis, altered thyroid function. Physiologic tremor, palpitations, nervousness, fever, hallucinations.

The maternal side effects observed in present study were Headache (8%), hypotension(12%) and tachycardia(24%) which were comparable with studies. conducted by Rayamajhi et al and Seema B Nagendrappa. In present study shows Maternal side effects were more reported in isoxsuprine group than Nifidepine group**.**Similar study conducted by D Kalita et al.[14] (1995) compared Nifedipine and Isoxsuprine in management of preterm labour between 28 and 36 weeks. 25 patients in each group received sublingual Nifedipine and I.V Isoxsuprine. . Maternal side effects were more reported in Isoxsuprine group. Nifedipine. Similar study conducted by Kedar et al[10] in 1999 reported Maternal side effects in Isoxsuprine group Tachycardia(28%) ,Hypotension (36%), Headache (12%), Flushing (34%),Nausea(34%),pulmonary edema(2%).In the present study mean birth weight after tocolysis with Nifedipine was 2.27 kgs and tocolysis with Isoxsuprine was 2.24kgs. Thus the results of present study are comparable with studies conducted by Rayamajhi et al, Seema B Nagendrappa, and Vasundhara Padmanadhan (2016). Neonatal out come in our study in terms of Mean Birth weight with nifedipine and Isoxsuprine are Mean Birth weight similar in both groups.and comparable with Rayamajhi et al study.

Neonatal out come in present study, there is higher incidence of RDS in in Isoxsuprine group about 8% (4 infants) as compared to Nifedipine group (6%). All 7 babies had mild RDS and were in NICU for nearly 5-6 days and were discharged. The perinatal mortality in both groups were similar. In Present study perinatal mortality slightly higher when compared to Rayamajhi et al study. due to prematurity complications septicemia, Intraventricular heamorrhage ,birth asphyxia found NICU admissions in nifedipine group less (16%) more in isoxsuprine group(42%.) overall Neonatal complications were significantly less in nifedipine group (34% compared to isoxsuprine group(52%). Present study comparable with Similar studies conducted by Rayamajhi et al they reported perinatal mortality less in Nifidine group than Isoxsuprine group. clinical trials have demonstrated no deleterious side effects on the fetus with Nifedipine.

Conclusion

In this study it was found that oral Nifedipine has fewer and less serious side effects as compared to I.V Isoxsuprine. Moreover I.V Isoxsuprine requires intensive monitoring of the patients. Nifedipine has the ease of oral administration. Other advantages are lack (relative) of serious maternal cardiac effects and carbohydrate metabolism in contrast to Isoxsuprine. Nifedipine drug was more successful in delaying the delivery for >/= 48 hours which would allow time for corticosteroids to enhance fetal lung maturity.

The mean prolongation of gestation was higher for Nifedipine when compared to Isoxsuprine. The neonatal outcome was comparable in both the groups. Hence it can be concluded that oral Nifedipine is a cheaper and effective alternative and has fewer and less serious side effects in contrast to I.V.

Conflict of Interest: Nil

Source of support: Nil

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