J. of Obst. & Gyn. of India Vol. 51, No. 3 : May/June 2001 Pg 66-67

Tocolysis with Ritodrine: A Comparative Study in Preterm Labor

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Summary

During 1 year of study there was an incidence of 9.53% of preterm delivery in Pt. B.D.S. PGIMS, Rohtak. Only 10.5% were fit to receive tocolysis. All patients were matched for age, parity, socio economic status. The mean prolongation with ritodrine and isoxsuprine were 23.63 and 16.61 days respectively. The incidence of side effect was slightly higher in ritodrine group and repeat tocolysis was required in 1 patient of each group. There was 1 FSB and 1 neonatal death in isoxsuprine group while there was none in ritrodine. Though ritodrine was more effective tocolytic agent it required strict monitoring.

Introduction

Preterm labor remains a significant problem the incidence bring 5-10% (Fuchs 1976, Sharma 1997) and causes perinatal mortality and morbidity of 85% (Rush et al, 1976, Sharma 1997). The diagnosis is established when pregnancy is between 28 to 36 wks. Contractions are approximately every 10 minutes and last for 30 sec. Associated with progressive changes in dilatation and/or effacement of cervix. The management is mainly pharmacological with agents which can temporarily depress myometrial activity. This study was undertaken to evaluate role of Betasympathomimetic ritodrine and its comparative evaluation with isoxsuprine in preterm labor.

Material and Method

The study was conducted in labor ward of Pt. B.D.S. PGIMS, Rohtak. All the patients who presented with preterm labor were scrutinized to select the patients for tocolysis, those who fulfilled the selection criteria for tocolysis were administered ritodrine (group I) and isoxsuprine (group II). The patients receiving these two drugs were matched for age, parity, previous risk factors, gestational age and cervical changes as shown in Table I.

Table I
Clinical Profile of two Groups at admission

Parameter	Group I	Group II
Age (in years)	24.16 ± 4.21	23.16 ± 3.57
Parity	1.03 ± 1.19	1.03 ± 1.19
No. of patients with previous PTB	5	7
Previous Abortion	0.33 ± 0.52	0.43 ± 0.93
No. of risk factor	1.9 ± 0.87	1.9 ± 0.79
Gestational period (in wks)	32.1 ± 2.1	32.1 ± 2.1
Cervical dilatation (in cm)	1.29 ± 0.77	1.09 ± 0.72
Cervical effacement (in %)	53.33 ± 19.77	61.33 ± 19.95

Selection Criteria for Tocolysis

Patient with pregnancy of 28-35 weeks gestation with intact membrane and painful uterine contraction of at least 1 per 10' for 30-60' sec and/or cervical dilatation of not more than 3 cm were included.

Table II
Effectiveness of Tocolysis

Effectiveness	Group I		Group II	
	No.	%	No.	%
Failed (<72 hrs)	7	23.3	11	36.6
Effective but PTB	10	33.3	9	30
Effective with term birth	13	43.3*	10	33.3
	t=.10		p>0.05	
Mean no. of weeks Preg. prolonged	3.4**		2.4	
	t=0.10		p>0.05 (insignificant)	

After detailed clinical history, P/S and P/V examination was done and investigated for Hb, urine, analysis, ABORh, STS, blood sugar and USG done to establish maturity and biophysical scoring and to exclude gross congenital malformation the patients were administered two drugs alternately after sedation Group I patient received I/V ritodrine starting with .05 mg/mt which was increased by .05 mg/mt every 10-15 minute until desired result was attained or side effect appeared. Maximum dose reached was 0.35mg/mt which was maintained for 12 hrs. then decreased to .05mg/mt. Oral therapy was started 30 minutes before discontinuation of I/V therapy with 10 mg tab every 2 hrs for 48 hrs. Patient was discharged after 48 hrs. of oral therapy as 10 mg every 6 hourly for 7 days.

Group II patient in this group received isoxsuprine I/V dose started from 0.1 mg/mt and increased by 0.1 mg/mt with max dose of 8 mg/ml was reached or uterine contraction subsided. The dose was maintained for 1 hr and then tapered by 0.1 mg/mt every half hourly. Before discontinuation of I/V 10 mg I/M was given and continued shortly for 24 hrs. then 10 mg 8 hourly orally for 7 days.

The patient were followed up in antenatal clinic and admitted when required. The labor was monitored and outcome noted.

Results

During this period of study there were 5989 deliveries, out of these 571 were preterm, incidence being 9.53%. The tocolysis was considered successful when delivery was delayed beyond 72 hrs. Tocolysis failed in 7 (23.33%) and 11 (36.7%) patients in group I and II respectively. It was successful in 23 (76.7%) and 19 (63.33%) patients in group I and II respectively. There were 13 (43.3%) and 10 (33.33%) term deliveries in Group I and II respectively and the difference was statistically insignificant as shown in table II. The mean prolongation in weeks in both groups was also insignificant.

Side Effects of Drugs

In group I, 12 (40%) and in group II, 20 (66.67%) patients had no side effects. In group-I, 18 (60%) and in group II, 10 (33.33%) had more S/E and hence discontinuation of the drug due to intolerable S/E was >(23.3%) and 8 (26.7%) in group I and II respectively which was statistically insignificant.

Perinatal Outcome

The mean gestational age at delivery was 35.6 ± 2.64 and 35 ± 3 wk. in group I and II respectively. The mean birth weight in successful tocolysis group was 2.67 ± 0.37 kg and 2.5 ± 0.5 kg in group I and II respectively while it was 1.66 ± 0.35 kg & 1.88 ± 0.55 kg in group I and II respectively in failed tocolysis group. The perinatal mortality rate was 66.7/1000 live births in group II while in group I there was none.

Discussion

In present study both drugs were compared and results were not different to any significant degree with mean prolongation of 23.63 days ± 15.54 with ritodrine and 16.61 days ± 14.52 with isoxsuprine (P<0.25) and probability error of 10% & 25% in group I and II respectively. Tocolysis was effective in 23 (>6.6%) patients of ritodrine group and 19 (63.3%) patients of isoxsuprine group. Tocolysis failure in ritodrine resulted mainly because of discontinuation due to side effects while in isoxsuprine group it was mainly because of non arrest of preterm labour. Side effects were slightly higher in ritodrine group. But therapy was discontinued due to intolerable side effects only in 6 (20%) in Group-I as compared to 8 (26.7%) patients in Group II.

Ritodrine was more efficacious in delaying delivery and increasing fetal maturity as compared to isoxsuprine.

References

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