ROLE OF ATOSIBAN IN PRETERM LABOUR in DHIRAJ HOSPITAL

AUTHORS

1st author

Dr Piyusha Chandrayan

MS OBGY,

Associate professor of Department of OBGY,

Dhiraj Hospital and SBKS medical institute and research centre,

Sumandeep Vidyapeeth, Pipariya,

Waghodia, Dist- Vadodara, Gujarat, 391760.

2nd author

Dr Vivek Patel

2nd Year resident in Department of OBGY,

Dhiraj Hospital and SBKS medical institute and research centre,

Sumandeep Vidyapeeth, Pipariya,

Waghodia, Dist- Vadodara, Gujarat, 391760.

3rd author

Dr Pranjali Jain

1st Year resident in Department of OBGY,

Dhiraj Hospital and SBKS medical institute and research centre,

Sumandeep Vidyapeeth, Pipariya,

Waghodia, Dist- Vadodara, Gujarat, 391760.

ABSTRACT

Aims: To evaluate the efficacy, safety and tolerability of atosiban in delaying preterm labour.

Methodology: Pregnant women (N=60) between the gestational age of 28 to 34 weeks, presenting with signs of preterm labour were enrolled in the study. Efficacy, safety and tolerability of Atosiban were assessed for a period of 72 hrs.

Results: Fifty Two patients (86.66%) remained undelivered up to 72 hrs after completion of treatment phase and fifty one patients (85.00%) till the end of their hospital stay (upto 7 days). The study medication was well tolerated as no adverse events were observed throughout the study duration. Conclusion: Atosiban, an oxytocin receptor antagonist, has proven to be an effective and well tolerated tocolytic drug and because of its favourable safety profile, it may be the best choice as a tocolytic therapy to delay the preterm labour.

Key Words : Pregnant Woman, Tolerability, Tocolytic, Oxytocin receptor antagonist, Undelivered.

INTRODUCTION

Pretem birth is one of the major causes of perinatal mortality and morbidity. INDIA contributes the maximum number to preterm birth in the world almost 3.5 million every year[1,2]. Preterm labour can be managed with tocolysis. Tocolysis sufficiently delays the delivery, so that administration of complete course of antepartum glucocorticosteroid to the mother can be done which can reduce the severity of respiratory distress syndrome in neonates and give enough time to transfer to centres with facilities of neonatal intensive facilities from hospitals where NICU facility is not available.[3]

Commonly used tocolytic agents are Calcium Channel Blocker (CCB) like nifedipine and β-adrenergic agents such as ritodrine, isoxsuprine, salbutamol and terbutaline. Other agents which are being used off label are magnesium sulfate, cyclooxygenase inhibitors like indomethacin etc. These drugs have not been proven to be very effective as they are not uterospecific; therefore, multi-organ fetomaternal side effects are expected and observed. Nifedipine usage as a tocolytic is commonly associated with side effects like tachycardia, palpitations, flushing, headaches, dizziness, and nausea. However, its main side

effect is hypotension, which may cause a decrease in uteroplacental perfusion. Continuous monitoring of the patient's blood pressure and fetal heart rate is recommended as long as the patient has contractions. Use of β-adrenergic agonists is hampered by treatment limiting adverse reactions, including maternal cardiac arrhythmias, vasodilatation resulting in systolic hypotension, stimulation of the central nervous system, and altered thyroid function.[4,5]

Atosiban is an oxytocin receptor antagonist and uterine specific tocolytic with more safety. Oxytocin causes uterine contractions through a direct effect on membrane bound receptors in the uterus (myometrium).Atosiban is a synthesized cyclic nonapeptide which acts as a competitive antagonist for oxytocin receptors in a dose-dependent manner and leading to the inhibition of uterine contraction.[6]

AIMS & OBJECTIVES

AIM:

To find the role of Atosiban in management of Preterm labour

OBJECTIVES:

1. To assess the efficacy of Atosiban in arresting preterm labour
2. To find out the duration of hospital stay with usage of Atosiban as compared to other tocolytics.
3. To compare the efficacy of Atosiban in primigravida and multigravida patients.

2. MATERIALS AND METHODS

A prospective, observational study was conducted at OBS & GYN Dept in Dhiraj Hospital, Vadodara. The study was approved by Institutional Ethics Committee (IEC) of the hospital. Written informed consent was obtained from all patients before participation in the study. All the antenatal patients who were fulfilling the inclusion criteria and exclusion criteria during period of Jan 2023 to June 2023 (6 months) were included in the study.

INCLUSION CRITERIA

1. Women >18 years of age.

2. Gestational age between 28 to 34 weeks which was documented by a definite last menstrual period (LMP)

3. Presence of 3-4 or more uterine contractions over 30 minutes, each lasting at least 20 seconds.

4. Cervical changes (primiparous women: a single cervical examination demonstrating dilatation of 0 cm to 2 cm, multiparous women: a single cervical examination demonstrating dilatation of 1 cm to 3 cm); effacement of at least 25-30%.

EXCLUSION CRITERIA

1. Preterm Rupture of Membranes

2. Vaginal Bleeding like Ante Partum hemorrhage

3. Suspected Chorioamnionitis

4. Intrauterine Growth Restriction

5. Severe Hypertensive Disorders

6. Non Reassuring Fetal Heart Rate

7. Any medical disorder like renal disease or cardiac disease etc.

Patients were screened prior to enrollment and eligibility was assessed according to the specified inclusion and exclusion criteria. All the patients underwent a complete physical examination and their relevant demographic details were noted. Laboratory investigations, including complete blood count, hemoglobin, hepatic and renal function tests, were carried out in all the patients. Eligible patients received treatment with Atosiban as

intravenous (i.v.) infusion for 48 hrs in three successive stages. The treatment was initiated by an initial bolus dose (6.75 mg) administered over 1 minute, then continuous high dose infusion (300 µg/min) for a period of 3 hours followed by 100 µg/min up to 48 hrs .

As per protocol, intravenous treatment was to be discontinued if there was progression of labour or rupture of membranes occurred. The exact dose of the investigational drug administered to the patient and the need and frequency of re-treatment were assessed. The patients could receive re-treatment with atosiban. Antibiotics and corticosteroid therapy was allowed when needed.

The primary objective of the study was to evaluate the efficacy of atosiban in delaying or arresting preterm labour. Secondary objective was to evaluate the safety and tolerability of the investigational product. Patients were assessed at 24 hrs, 48 hrs and 72 hrs after treatment, followed by an end of study assessment at discharge.

3. RESULTS

A total of 60 patients meeting the eligibility criteria were enrolled in the study to receive treatment with atosiban. The demographic profile and baseline clinical characteristic of the patients is given in Table 1.

Table 1. Demographics of enrolled patents at baseline (N=60)

PARAMETER	**MEAN ± SD**
AGE (YEARS)	22 ±4
GESTATIONAL AGE (WEEKS)	31.5 ±2.4
HEIGHT (cm)	151.4 ± 4.6
WEIGHT (KG)	50.6 ± 5.28
CERVICAL DILATATION (cm)	1.88 ± 0.78
UTERINE CONTRACTION FREQUENCY (IN 30 MINS)	2.8 ± 1.4

Table 2. Efficacy Analysis Based on Duration of Tocolysis

After completion of 48 hrs of infusion, 86.66% (52/60) patients remained undelivered at 72 hrs. Successful tocolysis was noted in 85% (51/60) patients at the time of their discharge from hospital (Fig. 1)

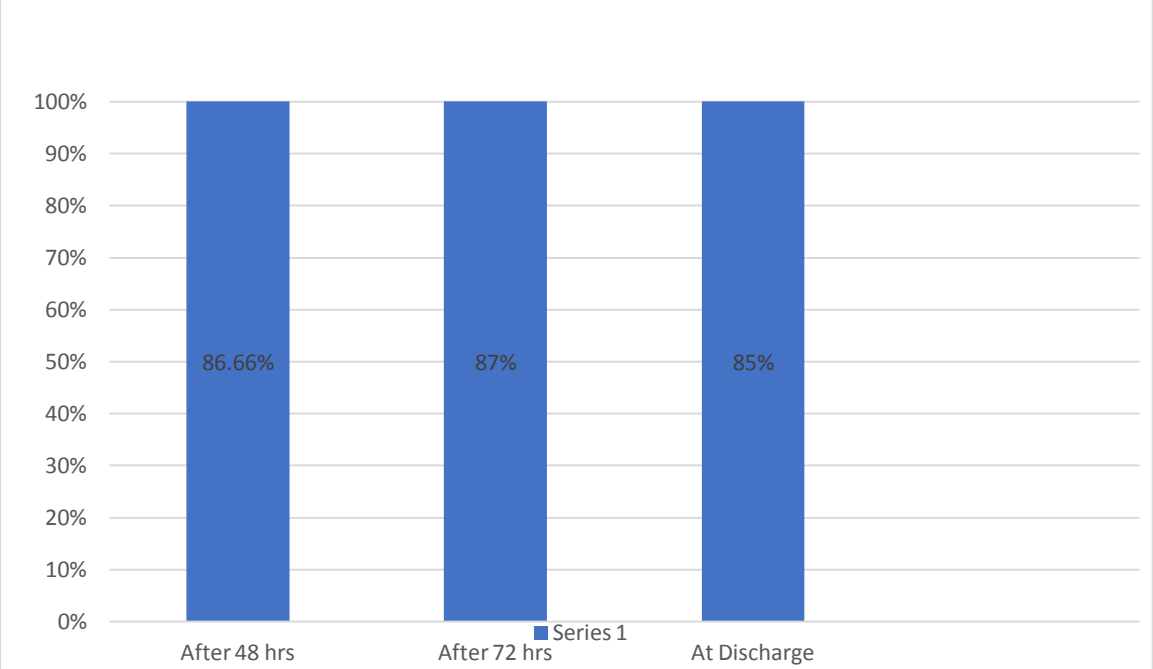

Table 3. Description of patients (n=11) with more than seven days of hospital stay

No.	Age (Yr)	Gestational Age at Discharge (weeks)	Duration of Hospital Stays (days)	Delivery status
1.	24	34	8	undelivered
2.	22	33	9	undelivered
3.	28	30	8	undelivered
4.	26	34	11	delivered
5.	21	31	8	undelivered
6.	25	29	8	undelivered

Average stay of patients in the hospital was 4 days but there were 6 patients who stayed in the hospital for more than 7 days. Out of them only one patient delivered and remaining patients continued with their pregnancy till the time of discharge.

Table 4. Efficacy of atosiban in primiparous and multiparous patients (N=60)

Type of Pregnancy	Number of Patient	Patients Undelivered till Discharge (%)
Primiparous	23	20 (87%)
Multiparous	37	31 (84%)

Tocolytic efficacy of Atosiban was analyzed based on parity. Atosiban was almost equally effective in both the groups.

4. CONCLUSION

As per this study, atosiban is much effective in managing preterm labour even in very preterm labour. The drug is expensive and has a short shelf life. Do, its usage is lmited.

With this study, we would like to conclude , that atosiban is much effective tocolytics with minimal side effects. So, its use should be encouraged.

REFERENCES

1. Blencowe H, Cousens S, Oestergaard MZ, Chou D, Moller AB, Narwal R, et al. National, regional and worldwide estimates of preterm birth. The Lancet. 2012; 379(9832):2162-72. Available:http://dx.doi.org/10.1016/S0140- 6736(12)60820-4

2. Sinha K. India shares highest preterm birth burden. Available:http://timesofindia.indiatimes.co m/india/India-shares-highest-preterm-birth burden/articleshow/13913315.cms (8 Jun 2012)

3. Ingemarsson I, Lamont RF. An update on the controversies of tocolytic therapy for the prevention of preterm birth. Acta Obstet Gynecol Scand. 2003;82(1):1-9. Available:http://dx.doi.org/10.1034/j.1600- 0412.2003.820101.x

4. Papatsonis DN, Van Geijn HP, Ader HJ, Lande FM, Bleker OP, Dekker GA. Nifedipin and ritodrine in the management of preterm labour: A randomized multicenter trial. Obstet Gynecol. 1997; 90(3):230–234. Available:http://dx.doi.org/10.1016/ S0029- 7844(97)00182-8

5. Peter SB, Mary K. Using nifedipine as a tocolytic in preterm labour. Medscape; 2004. Available:http://www.medscape.com/viewa rticle/484260

6. Sanu O, Lamont RF. Critical appraisal and clinical utility of atosiban in the management of preterm labour. Therapeutics and Clinical Risk Management. 2010;6:191–199. Available:http://dx.doi.org/10.2147/TCRM. S9378