



ROLE OF HYDROXYPROGESTERONE CAPROATE INJECTION IN PREVENTION OF PRETERM LABOUR IN HIGH RISK PATIENTS FOR PRETERM DELIVERY.

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ABSTRACT... Preterm labour is occurrence of labour after 24 completed weeks of gestation and before 37 weeks of gestation are completed. In Asia preterm birth rate is quoted to be 9.1% while in Pakistan it is 15.7%. To establish role of hydroxyprogesterone caproate injection in prevention of preterm labour in high risk patients for pre-term delivery. **Study Design:** Descriptive case series. **Setting:** Obstetrics & Gynaecology Department at Nishtar Hospital Multan. **Period:** 25th October 2017 to 25th April 2018. **Materials and Methods:** 148 pregnant patients who were at high risk of pre-term delivery, women with any parity and singleton pregnancy and ongoing pregnancy between 24 to 36 gestational weeks were taken in the study. Patients having multiple pregnancy, fetal membrane rupture, having any contraindication to progesterone or taking medicines having interaction with progesterone were excluded from the study. All patients included in the study were given 250mg/ml hydroxyprogesterone caproate injection on weekly basis by intramuscular route. Injections were given till 36 completed gestational weeks or till the time of delivery which ever happened earlier. Patients who had pre-term delivery were managed as per standard protocol. Information was recorded in form of efficacy on a specially design proforma. **Results:** In the study range of age was 18-35 years and mean was 28.486 ± 2.79 years. 30.405 ± 2.42 weeks was mean for gestational age. Mean for prior pre-term delivery was 0.520 ± 0.83 and 26.398 ± 1.44 kg/m² was mean BMI. 70.3% patients showed efficacy of drug. **Conclusion:** Results of study showed that hydroxyprogesterone caproate injection given as 250mg/ml on weekly basis causes significant decline in occurrence of recurrent pre-term delivery in high risk patients for pre-term delivery.

Key words: Hydroxyprogesterone Caproate Efficacy, Perinatal mortality, Pregnancy, Pre-term Labour.

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INTRODUCTION

Pre-term delivery is one of the major causes of perinatal morbidity and mortality, worldwide responsible for neonatal mortality rate of 28 %.¹ Pre-term labour is occurrence of labour after 24 completed weeks of gestation and before 37 weeks of gestation are completed.² In about 45-50% of cases no cause can be found for preterm births and are spontaneous.³ Pre-term birth is a major contributor of perinatal mortality and morbidity and a major contributor to public health issues.⁴ In developed countries preterm delivery accounts for 5% of cases while in underdeveloped countries incidence is 25%.⁵ In a report, in the year 2010 Pakistan is at 4th number worldwide regarding pre-term birth rate.⁶

Progesterone by virtue of its mechanism of action at various levels in myometrium by blocking oxytocin induced effect of PGF2 α and α adrenergic stimulation helps to prolong pregnancy to term.⁷ Khan FK and her colleagues found in a study that hydroxyprogesterone caproate can prevent 68.15% cases of pre-term labour in patients who are at high risk for pre-term delivery.⁸ Another study conducted by Meis PG and his colleagues preterm labour was prevented in 63.7% cases by hydroxyprogesterone caproate in high risk women for preterm delivery.⁹

This study is specifically conducted to find out the effectiveness of hydroxyprogesterone caproate for prevention of preterm labour in high risk

patients for preterm delivery in our population. Since incidence of preterm labour is quite high in our population so finding treatment for it will greatly help to reduce perinatal mortality and morbidity associated with this particular condition.

MATERIAL & METHODS

148 pregnant patients who were at high risk of pre-term delivery, women with any parity and singleton pregnancy and ongoing pregnancy between 24 to 36 gestational weeks were taken in the study. Patients having multiple pregnancy, fetal membrane rupture, having any contraindication to progesterone or taking medicines having interaction with progesterone were excluded from the study. Permission was granted from ethical committee of Nishtar Hospital. After taking informed consent, detailed history and examination was done. Patients were counselled regarding effect of progesterone, side effects and method of administration. Previous pre-term deliveries number was recorded. All patients included in the study were given 250mg/ml hydroxyprogesterone caproate injection on weekly basis by intramuscular route. Injections were given till 36 completed gestational weeks or till the time of delivery which ever happened earlier. Patients who had pre-term delivery were managed as per standard protocol. Injections were administered by 4th year residents. Procedure was supervised by consultant gynaecologist with at least 3 years experience after fellowship. Information was recorded in form of efficacy on a specially design proforma.

RESULTS

In the study range of age was 18-35 years and mean was 28.486 ± 2.79 years. 30.405 ± 2.42 weeks was mean for gestational age. Mean for prior pre-term delivery was 0.520 ± 0.83 and 26.398± 1.44 kg/m² was mean BMI. 70.3% patients showed efficacy of drug. Table-I

Demographics		Mean ± SD
1	Age (Years)	28.486±2.79
2	Gestational age (Weeks)	30.405±2.42
3	Previous Preterm Delivery	0.520±0.83
4	BMI (Kg/m ²)	26.398±1.44

Table-I. Mean ± SD of Age, Gestational age, previous preterm delivery and BMI n=148

Most of the patients (62.8%) were from 28-35 years as shown in Table-II:

Age (Years)	Frequency	%age
18-27	55	37.2%
28-35	93	62.8%
Total	148	100%

Table-II. Frequency and percentage of patients according to Age n=148

Table-III and Table-IV show gravida frequency and percentage.

Gravida	Frequency	%age
1	88	59.5%
2	29	19.6%
3	12	8.1%
4	15	10.1%
5	4	2.7%
Total		100%

Table-III. Frequency and percentage of patients according to Gravida n=148

Parity	Frequency	%age
1	88	59.5%
2	29	19.6%
3	12	8.1%
4	15	10.1%
5	4	2.7%
Total	148	100%

Table-IV. Frequency and percentage of patients according to parity n=148

Drug showed efficacy in 70.3% of patients as shown in Table-V.

Efficacy	Frequency	%age
Yes	104	70.3%
No	44	29.7%
Total	148	100%

Table-V. Frequency and percentage of patients according to efficacy n=148

DISCUSSION

Hydroxyprogesterone caproate injection was found to be effective in 70.3% patients in my study. These results are comparable to a study conducted by Khan FK and her associates in which hydroxyprogesterone caproate was effective in 68.15% high risk cases for preterm

delivery.⁸ Hydroxyprogesterone caproate in a study by Meis PJ prevented pre term labour in 63.7% high risk patients for pre term delivery.⁹

Progestational compounds when used as prophylactic treatment showed promising results in small trials¹⁰⁻¹³ but encouraging results were not shown by all trials.^{14,15} One meta analysis failed to provide evidence for effectiveness of these compounds regarding prevention of preterm delivery.^{16,17} Another meta analysis involving alpha hydroxyprogesterone revealed effectiveness for reducing rate of pre term delivery.^{17,18} Because of it I used this drug for my study. Results of my study revealed that hydroxyprogesterone caproate injection given as 250mg/ml on weekly basis causes significant decline in occurrence of recurrent preterm delivery in high risk patients for preterm delivery. Therefore prematurity along with its all adverse consequences can be prevented. One of the limitation of this study is that controlled group for more comprehensive comparison to see reduction in premature infants number was not made. But other studies compared it and revealed a significant decrease in neonatal mortality in the group in which progesterone treatment was given. As there were only two deaths, one neonatal death caused by RDS and one still birth caused by chorioamnionitis in comparison with control group.¹⁹

CONCLUSION

Results of study showed that hydroxyprogesterone caproate injection given as 250mg/ml on weekly basis causes significant decline in occurrence of recurrent pre-term delivery in high risk patients for pre-term delivery.



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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Saima Ashraf	Planning & Conception of study. Manuscript writing.	
2	Iqra Imtiaz	Data collection.	
3	Zahida Saqlain	Data analysis, Proof reading.	