



Effect of Antenatal Administration of Glucocorticoids in the Prevention of Respiratory Distress Syndrome in Preterm Labour

KEYWORDS

Respiratory distress syndrome-RDS, Glucocorticoids, Betamethasone, Hyaline membrane Disease - HMD

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ABSTRACT *The aim of the study was to prove the efficacy of antenatal Glucocorticoid administration in preventing respiratory distress syndrome in preterm labour. The study population consists of 200 patients admitted in labour ward. 100 were in the control and 100 were in the treatment group. Gestational age between 28-34 weeks were included in the study. 2 doses of Betamethasone 12mg, 24 hrs apart were given. Percentage of RDS in the steroid treated group and control group were studied. The study included demographic characters, gestational age, treatment delivery interval, birth weight, grading, duration of preterm care and outcome. Those who had complete course of treatment had a better outcome. We concluded that there is a definite role for glucocorticoids in prevention of RDS in preterm labour.*

INTRODUCTION

Preterm labour is painful, regular, frequent, uterine contraction causing progressive effacement and dilation of cervix occurring before 37 completed weeks of gestation. The weeks of gestation is determined by calculating the mother's LMP, by clinical dating and by ultrasound examination. Neonatal respiratory distress syndrome is a situation characterized by grunting, intercostal retraction, nasal flaring, cyanosis in room air and requirement of oxygen to maintain adequate arterial oxygen pressure.

There are multiple causes of neonatal RDS and the most frequent cause is Hyaline Membrane Disease. Chest X-ray is specific in differentiating HMD from other causes of RDS. HMD occurs because of inadequate production of pulmonary surfactant by the Type II alveolar cells. [1-2] Dipalmitoyl phosphatidyl choline is the main component of pulmonary surfactant. The corticoids are 21 carbon compounds having cyclopentanoperhydrophenanthrene nucleus.

Physiological effects of glucocorticoids in developing lung are increased tissue and alveolar surfactant, increased compliance and maximum lung volume, decreased vascular permeability, more mature parenchymal structure, enhanced clearance of lung water, enhanced response to surfactant treatment, improved respiratory function and survival. [3-6] We conducted a research on antenatal administration of glucocorticoids in prevention of respiratory distress syndrome in preterm labour.

Materials and methods

The study population comprises of antenatal patients admitted in our labour ward who went for preterm labour. 200 patients were selected and grouped into treatment and control group. Gestational age between 28-34 weeks was determined clinically and by ultra sonogram. Uterine contractions which are 5 to 8 min apart, cervical dilatation between 2 to 3 cm, effacement of 50% or more were taken into study.

Drug Protocol

Betamethasone 24 mg in 2 divided doses 24 hours apart prior to preterm delivery. RDS was assessed by Downe's scoring which includes respiratory rate, chest retractions, cyanosis, grunting, air entry. When RDS is present X-ray is taken as the chief investigation. Granular pattern, ground glass appearance, air bronchogram were taken as evidence of RDS. The data was collected and analyzed.

Results

The present study consists of 200 patients who went for preterm labour. 100 patients were in the study group and 100 were in control group. The period of study is from March 2015 to March 2016, 12 months. In the present study maximum number of patients were in the age group of 20-30 years.

According to age, most of the patients in steroid treated (76%) and control group was in 20-30 (78%) years of age. In our hospital low socio economic status formed 87% in steroid treated and 88% in control group. (Table-1) Primigravida and secondary gravida form the major part of the study. Gestational age of 32-34 weeks form the most salvageable group. (Table-2) Antenatal steroid administration, prevents occurrence as well as severity of RDS and reduces the duration of preterm care. (Figure-1)

Discussion

The present study consists of 200 patients who went for preterm labour. 100 patients were in the study group and 100 were in control group. The period of study is from March 2015 to March 2016, 12 months. In the present study maximum number of patients were in the age group of 20-30 years. Garite et al shows maximum number in <20 years [7].

Most of the patients were primigravida and in 32-34 weeks age group, the most salvageable group. Gamsu [8] et al showed similar results. Incidence of the disease in steroid treated group is 10%. Incidence in the control group is 23%.

The duration of stay correlated well with severity of disease. Antenatal steroid administration, prevents occurrence as well as severity of RDS and reduces the duration of preterm care.[9] The present study correlated well with the study of Neyeri et al.[10]Mortality in the steroid group with RDS is 2 out of 12 babies-16.6%.Mortality in control group is 10 out of 33 babies-30.3%.There were 2 deaths(2%) among 100 steroid babies and 10 deaths (10%) among 100 control babies.

There is definitely an increased risk of RDS in the population not treated and was higher in extremes of birth weight for a given gestational age. The benefits of corticosteroids have been demonstrated in lessening the rate of bronchopulmonary dysplasia[11-13]],use of surfactant along with corticosteroids may enhance the benefits.[14-17]. In Cochrane review betamethasone resulted in greater reduction in RDS than Dexamethasone treatment.

Conclusion

The study was undertaken to prove the efficiency of antenatal betamethasone in reducing respiratory distress syndrome in preterm infants. The present study was undertaken to assure about the benefits of steroids, its relatively insignificant complications and to bring it as a protocol in the management of preterm labour. All the health workers and Para medical staff should be taught about the benefits of steroids to reduce morbidity and mortality associated with preterm labour .

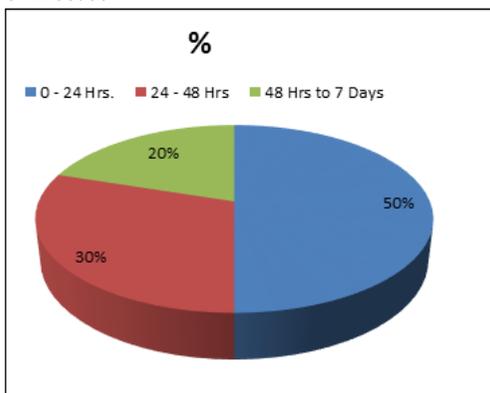
TABLE-1: Steroid Treatment and Respiratory Distress Syndrome

Description	Steroid treated%	Control%
Respiratory distress	10%	23%
Death due to RDS	2%	10%
No respiratory distress	88%	67%

TABLE-2: Gestational age and percentage of RDS

Gestational	Steroid Treated			Control		
	No	%	Death	No	%	Death
28 – 30	6	46.15	1	12	60.00	5
30 - 32	2	6.45	1	8	25.80	3
32 - 34	2	3.63	0	6	12.00	2

FIGURE-1: Treatment Delivery Interval and Occurrence of Disease



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