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Original article:

Study of respiratory morbidity in term neonates following the elective caesarean section in YCM Hospital, Pune

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Abstract

Background: Cesarean sections continue to increase in daily practice in both developed and developing countries. The chances of the respiratory morbidity are much more in newborn by C-section compared to normal deliveries due to absence of squeezing of lung during delivery and also absence of changes in maternal-fetal hormonal milieu. As gestation progresses lung maturation improves and less chances of respiratory morbidity. Our objectives to study topic was to determine respiratory morbidity in scientific way. Delivery by elective caesarean section was shown to increase the risk of respiratory morbidity in all studies eligible for inclusion.

Methodology: It was the retrospective study carried out in duration of one year in our YCM Hospital , Pune . The records of babies born by elective C-section were reviewed data entered in predesigned and validated proforma and analyzed using appropriate statistical tests. Hospital record data was collected. Case sheets were reviewed to obtain data regarding the demographic details like maternal age and parity. Neonatal outcome was analyzed. The sample size was estimated with the help of expert. The data was collected on the basis of retrospective tools.

Results: A total 140 babies were included in the study. 11 babies had developed respiratory morbidity requiring NICU admission. 19.01% of babies born in 37th week, 12.55% of 38th week, 7.88 % of 39thweek and 4.67 % of babies born >40weeks had developed respiratory illness. Type of morbidity varied from tachypnea (92.01%), grunt (74%), needing CPAP (7.11%), needing mechanical ventilation (6.80%).

Conclusions: From this study , we may conclude that , the risk of respiratory morbidity after elective C-section is related to gestational age in term neonates is more.

Introduction:

Cesarean sections continue to increase in daily practice in both developed and developing countries. The chances of respiratory morbidity are more in the babies born by C-section compared to normal deliveries due to absence of squeezing of lung during delivery and also absence of changes in maternal-fetal hormonal milieu. As gestation progresses lung maturation improves and less chances of respiratory morbidity. The objective of this study is to determine respiratory morbidity in scientific way. Delivery by elective caesarean section was shown to increase the risk of respiratory morbidity in all studies eligible for inclusion.[1] The magnitude of this relative risk seemed to depend on gestational age even in deliveries after 37 completed weeks of gestation. [2]

Caesarean section used to be carried out primarily because of obstetric complications or serious maternal illness. Lately many other factors, such as reduced risk to the mother as a result of improved anaesthetic procedures and surgical techniques, elective caesarean section because of breech presentation, or previous caesarean section may

have contributed to changes in obstetric practice and patient choice.[2] Thus increased rates of elective caesarean section without any obvious or generally accepted medical or obstetric indication have been reported to contribute further to the increasing rate of elective caesarean sections.[3,4] If no medical indication is present evidence based information about risks and benefits for mothers as well as newborns becomes all the more important for adequate counselling.[5]

Our aim was to determine respiratory morbidity and to correlate weeks of gestation and respiratory morbidity in term neonates following elective C- section in our Hospital.

Methodology:

This was a hospital based observational study with retrospective collection of data conducted at YCM Hospital , Pimpri , Pune. The sample size was estimated with the help of expert. The data was collected on the basis of retrospective tools.

All babies born by elective C-section in last 6 months were included in our study by random sample methods. C-section was considered if elective without complications like rupture of membranes, sepsis, PIH, multiple gestation and major congenital anomalies and completed 37 weeks of gestation.

In patient, medical records of all mother- infant pair admitted in hospital following elective C-section were reviewed.

Gestational age calculated using last menstrual history.

If menstrual history not known first trimester scan taken into consideration.

The collected data included gestational age, indication for LSCS, gender, symptoms of respiratory morbidity, duration of hospital stay.

The records of babies born by elective C-section were reviewed data entered in predesigned and validated proforma and analyzed on the basis of statistical ground.

Neonatal outcome analyzed included birth weight, sex of the baby, APGAR score at 1 and 5 minutes, NICU admission (admission more than 3 days), neonatal respiratory morbidity like transient tachypnea of newborn, respiratory distress syndrome and persistent pulmonary hypertension and serious respiratory morbidity (oxygen therapy for more than two days, nasal continuous positive airway pressure, or need for mechanical ventilation).

Results:

A total 140 babies were included in the study. 11 babies had developed respiratory morbidity requiring NICU admission. 19.01% of babies born in 37th week, 12.55% of 38th week, 7.88 % of 39thweek and 4.67 % of babies born >40weeks had developed respiratory illness. Type of morbidity varied from tachypnea (92.01%), grunt (74%), needing CPAP (7.11%), needing mechanical ventilation (6.80%).

Discussion:

The said study carried out in YCM Hospital ,Pimpri , Pune. A total 140 babies were included in the study. 11 babies had developed respiratory morbidity requiring NICU admission. 19.01% of babies born in 37th week, 12.55% of 38th week, 7.88 % of 39thweek and 4.67 % of babies born >40weeks had developed respiratory illness. Type of morbidity varied from tachypnea (92.01%), grunt (74%), needing CPAP (7.11%), needing mechanical ventilation (6.80%).

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In term deliveries we found a major modification of the association between elective caesarean section and respiratory morbidity by gestational age, with the earlier elective caesarean sections associated more with respiratory morbidity than the later caesarean sections. This was found even when comparing with babies intended for vaginal delivery during the same gestational week, which for the earlier deliveries at term is not the most likely alternative because most spontaneous vaginal deliveries take place at 40 weeks or later.[6]

Our study underlines that elective caesarean section compared with intended vaginal delivery leads to a twofold to fourfold increased risk of overall neonatal respiratory morbidity and even higher relative risks of serious respiratory morbidity in term newborns.

Normal lung development follows a series of orchestrated events. Premature birth interrupts normal in utero lung development, which results in significant alterations in lung function and physiology. Increasingly, there are reports documenting the broad range of complications experienced by infants aged 34 to 36 weeks' gestational age (GA).

Hamida Ben and colleagues observed that there was a significant reduction in the incidence of respiratory distress from elective caesarean performed after 39 weeks gestation.[7] Neonatal respiratory morbidity risk is significantly increased in neonates delivered by elective cesarean section before 39 weeks gestation. Our results suggest that reduction in the neonatal respiratory morbidity would be achieved by delaying the elective cesarean delivery until 39 weeks.

Conclusion

From this study , we may conclude that , the risk of respiratory morbidity after elective C-section is related to gestational age in term neonates is more . If elective C-section performed after 39 weeks of gestation respiratory morbidity lower than if performed between 37-39 weeks these results indicate that waiting until 39 weeks of gestation before performing elective C-section is of benefit to newborn.

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