

A STUDY OF MECONIUM ASPIRATION SYNDROME IN NEONATAL INTENSIVE CARE UNIT AT RAJAH MUTHIAH MEDICAL COLLEGE, CHIDAMBARAM.

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ABSTRACT

Introduction: Meconium Aspiration syndrome forms one of the commonest cause of respiratory distress in the newborn occurring in 10-12.5% of all the deliveries occurring worldwide and has a mortality rate as high as 28- 40% in the affected new born.⁽⁸⁾ Meconium aspiration syndrome (MAS) is defined as respiratory distress in an infant born through meconium - stained amniotic fluid (MSAF) with characteristic radiological changes and whose symptoms cannot be otherwise explained⁽²⁾. The syndrome presents with wide range of complications ranging from mild transient tachypnoea to respiratory failure.Meconium Stained Amniotic Fluid (MSAF), though a sign of fetal maturity, suggests jeopardy in the presence of abnormal cardiocogram and acidemia. The association of MAS with certain maternal, fetal and other factors is well established in this study. It is concluded that good intrapartum monitoring and neonatal management can reduce the complications of meconium aspiration syndrome to a great extent. **Method of study:** A prospective study was carried out in the Neonatal intensive care unit at Rajah Muthiah medical college & hospital,Chidambaram. The study population included 60 newborns, with meconium aspiration syndrome. These babies were analysed based on their sex, gestational age, birth weight,mode of delivery, grade of meconium & parity index of the mother. **Results:** MAS was more common in neonates delivered by LSCS & those born to primipara. Presence of thin meconium is not of much concern if babies were active. Severe the asphyxia, higher is the chances of thick meconium stained liquor and greater probability of MAS. The incidence of MAS was more in term & post term neonates with appropriate birth weight. Intrapartum monitoring and neonatal management can reduce the incidence & complications of meconium aspiration syndrome to a great extent.

Keywords Meconium aspiration syndrome, Neonatal Intensive Care

1.INTRODUCTION

Meconium aspiration syndrome (MAS) is one of the commonest cause of severe respiratory distress in term infants, with highly variable morbidity and mortality. Meconium aspiration is defined as the presence of meconium below the vocal cords. This occurs in 20-30% of neonates with MSAF (Raju et al., 2010). Meconium aspiration syndrome (MAS) is defined as respiratory distress in a baby born through meconium-stained amniotic fluid (MSAF) with characteristic radiological changes and whose symptoms cannot be otherwise explained (Sandeep Tripathi and Arvind Sali,2007). Meconium is rarely found in the amniotic fluid prior to 34 weeks of gestation hence MAS is often a disease of the term and post-term neonates.

MSAF is found in 10-15% of births and MAS develops in 5% of term and post term infants of which 30% requires mechanical ventilation & 5% die (Ramakishore,2015). Treatment modalities include Amnioinfusion, mechanical ventilation, extracorporeal membrane oxygenation and other supportive therapies. The association of meconium aspiration syndrome with certain maternal, fetal, and other factors is well established in this study. It is concluded that good intrapartum suctioning and neonatal management can reduce the complications of meconium aspiration syndrome to a great extent

AIMS AND OBJECTIVES:

1. To study the association between meconium aspiration syndrome with the mode of delivery and parity of the mother.

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2. To analyse the association between meconium aspiration syndrome with gestational age, birth weight and sex of the baby.

2.MATERIALS

A prospective study was carried out in the neonatal intensive care unit at Rajah Muthiah medical college & hospital,Chidambaram. The study population included 60 newborns, with meconium aspiration syndrome. This study includes the clinical profile of all cases of MAS, admitted at the above center between September 2015 to September 2016

SELECTION CRITERIA:

All neonates born with meconium aspiration syndrome admitted in NICU were included in the study. Those neonates born with major congenital anomaly & those suspected to have Congenital Heart Disease during the hospital stay were excluded from the study.

METHOD OF STUDY

60 neonates admitted at RMMCH-NICU were randomly selected. These babies were analysed based on their sex, gestational age, birth weight, mode of delivery, grade of meconium & parity index of the mother. The results were tabulated & analysed.

3.RESULTS

Table 1 to 6 show meconium aspiration syndrome in neonatal intensive care unit at rajah muthiah medical college, chidambaram.

Table 1: Tabulation Based on the Sex

Sex of the baby	No. of Cases
Male	26 (43.3%)
Female	34 (56.7%)
Total	60 (100%)

Table 2: Tabulation Based on Gestational Age

Gestational age	No. of Cases
Preterm	10(16.7%)
Term	45(75%)
Post term	5(8.3%)
Total	60(100%)

Table 3: Tabulation Based on Birth Weight

Birth weight	No. of Cases
Low birth weight	11(18.3%)
Appropriate birth weight	49(81.7%)
Total	60(100%)

Table 4: Tabulation Based on Mode of Delivery

Mode of delivery	No. of Cases
LSCS	47(78.3%)
NVD	10(16.7%)
Outlet forceps	3(5%)
Total	60(100%)

Table 5: Tabulation Based on Parity Index

Parity index	No. of Cases
Primi	42(70%)
Multi	18(30%)
Total	60(100%)

Table 6: Tabulation Based on the Grade of Meconium

Grade of Meconium	No. of Cases
Grade 1	7(11.7%)
Grade 2	21(35%)
Grade 3	32(53.3%)
Total	60(100%)

GRADE 1-Translucent light yellow green in color
GRADE 2-Opalescent with deep green & yellow colour
GRADE 3-Opaque and deep green color

4.DISCUSSION:

A study was conducted by Ramakishore (2015). The study shows that there was no sexual preponderance in the occurrence of meconium aspiration syndrome in neonates. In our study,43% were males and 57% were females. Yet the difference was statistically insignificant thus stating there is no sexual preponderance in the occurrence of MAS.

In a study conducted by Ramakishore (2015) in 50 neonates, 92% of neonates with MAS were Term and 8% were post term with mean gestational age around 40 weeks.The study showed increased incidence in term newborn. In our study also, the incidence of MAS was more in term (75%) neonates than pre term (17%) neonates and post term (8%) neonates.

Ramakishore, (2015) also observed that babies weighing 2.5kg-3kg have formed the higher percentage of 58% followed by <2.5kg (22%) babies between 3-3.5kg were 16% & 3.5-4% were 4%. Thus the incidence of MAS was more in neonates with appropriate birth weight than low birth weight neonates. Similar results were observed in our study with incidence of MAS more common in babies with appropriate birth weight (82%) than in low birth weight babies (18%).

In our study, 78% of neonates were delivered by LSCS, 17% were delivered by normal vaginal delivery and 5% were delivered by outlet forceps. Thus the incidence of LSCS was more common in mothers delivering babies with MAS.

A study by Bhaskar et al (1997) observed that occurrence of MAS was high with LSCS deliveries. Meta-analysis of 14 randomized controlled trials (RCTs) suggests that elective induction of labor for pregnancies at or beyond 41 weeks is associated with significant reduction in the incidence of MAS (RR = 0.43, 95% CI 0.23–0.79) and fewer perinatal deaths (RR =0.31; 95% CI: 0.11–0.88) compared to expectant management (Hussain et al., 2011).A study conducted by Jothi ramesh et al (2013) showed an increased incidence of MAS in normal deliveries than LSCS and instrumental deliveries.

In a study by Ramakishore, (2015), about 58% were primi, 38% were Multi and 4% were grand multi with increased occurrence of MAS in neonates born to primipara. In our study, 70% of mothers were primi and 30% of them were multipara. Thus MAS was more common in neonates born to PRIMI mothers than multigravida. Bhaskar et al [69] also found that MAS was significantly more in primipara than multipara.

Davis et al (1992) stated that MAS was strongly associated with thick MSL and fetal heartrate abnormality. In our study, 12% of neonates were delivered through Grade 1 MSAF, 35% were delivered through Grade 2 MSAF, and 53% through Grade 3 MSAF.

The occurrence of MSAF was more in babies delivered through Grade 3 MAS than the other two grades. A study by Bhatia(2007) at department of O&G, kastuba hospital, Delhi stated that the occurrence of MAS was more in thick stained MSAF than moderate and thin MSAF.

5.CONCLUSION:

Meconium aspiration syndrome is one of the most common problems seen in the newborn period and contributes significantly to the neonatal morbidity and mortality. From our study we conclude that, there was no sexual preponderance in the occurrence of MAS. It was also found that MAS was more common in neonates delivered by LSCS & those born to primipara mothers. Presence of thin meconium is not of much concern if babies were active. Severe the asphyxia, higher is the chances of thick meconium stained liquor and greater probability of MAS. The incidence of MAS was more in term & post term neonates with appropriate birth weight. It is concluded that good Intrapartum monitoring and neonatal management can reduce the incidence & complications of meconium aspiration syndrome to a great extent.

LIMITATION:

The study group was less.To get more accurate reports- a multi-centric approach should be done at a large study population.

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