To Study the Complications of Meconium Aspiration Syndrome & their Outcome In Relation to Gestational Age & Birth Weight In Tertiary Health Care Centre

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Abstract :

Neonates born through meconium stained amniotic fluid,2-3% of them develop Meconium Aspiration Syndrome. Out of them, 5-10% of them develop complications. Meconium Aspiration is typically seen in post-mature, small for date infants or a term infant with intrauterine hypoxia and in babies born with birth weight more than 2500gm.The objective is to study the complications of Meconium Aspiration Syndrome and their outcome in relation to gestational age and birth weight. **Methodology:** It is an prospective observational study was carried out in NICU of tertiary care centre and included 32 cases of Meconium aspiration syndrome. Study was done in a period of 14 months in and around Ahmednagar district. **Result:** The complications are Hypoxic Ischemic Encephalopathy (HIE), Seizures, Septicaemia, Pneumonia, Persistent Pulmonary Hypertension(PPHN), Airleak. Outcome of meconium aspiration syndrome in relation to gestational age is maximum death of 56.25% occurred in term babies which were 18. Outcome of meconium aspiration syndrome in relation to birth weight is maximum death of 53.12% occurred in neonates weighing between 2.5 to 3.5 kg which were 17. **Conclusion:** Meconium aspiration syndrome is seen in the new born period and contributes significantly to the neonatal morbidity and mortality. Severe Hypoxic ischemic encephalopathy being most common complication and birth asphyxia being most common cause of death.

Keywords: Meconium Aspiration Syndrome, Birth asphyxia, Post term neonate

Introduction:

Meconium starts forming from the third month of gestation.(1) It is a sterile, thick, black, green, odourless material that results from accumulation of debris in fetal intestine. It is composed of water(80%),desquamated cells from the intestine and skin, gastrointestinal mucin, lanugo hair, fine material from vernix caseosa, amniotic fluid, intestinal secretions, blood group specific glycoproteins and drug metabolites.(2) Meconium stained amniotic fluid complicates delivery in approximately 8 to 25% of live births. Most babies with meconium stained amniotic fluid are 37weeks or older and many meconium stained infants are post term and small for gestational age. Meconium aspiration syndrome classically has been defined as respiratory distress that develops shortly after birth with radiographic evidence of aspiration pneumonitis and history of meconium stained fluid.(3) Hypoxia or infection can lead to passage of meconium in utero. Hypoxia can stimulate gasping respiration in foetus which can lead to aspiration of meconium containing amniotic fluid. In addition meconium passage may be a physiological consequence of increased level of intestinal hormone motilin.(4) Mother who have pregnancy induced hypertension, chronic respiratory or cardiovascular disease, heavy smokers, post term pregnancy are at increased risk of meconium aspiration syndrome.(5) Most babies with meconium stained amniotic fluid are 37weeks or older and many meconium stained infants are post term and small for gestational age. Approximately 5% of neonates born through meconium stained amniotic fluid develop meconium aspiration syndrome and 50% require mechanical ventilation.(6)

Methodology:

Aims & objective:

1. To study the complications of meconium aspiration syndrome.
2. To study neonatal outcome of meconium aspiration syndrome in relation to gestational age and birth weight.

Study Design: prospective observational study

Sample Size: 32 cases of Meconium aspiration syndrome.

Place of study: NICU of tertiary Health care hospital

Study period: 14 months (1st July 2018 - 30th September 2019)

Inclusion criteria: All babies born in the hospital with meconium aspiration syndrome.

Exclusion criteria: New born with congenital anomalies.

Results:

Table 1: Complications of meconium aspiration syndrome

Complications	Number of cases	Percentage (%)
Hypoxic ischemic encephalopathy (HIE)	9	30.95
Seizures	5	16.66
Septicemia	5	14.28
Pneumonia	4	11.9
PPHN	5	14.28
Air leak	4	11.9

Table 2: Outcome of Meconium Aspiration Syndrome in relation to Gestational Age

Gestational Age	Cases	Expired	Percentage (%)
Preterm(<37weeks)	5	1	15.62
Term(37-41 weeks)	18	7	56.25
Post-term(>41weeks)	9	1	28.12

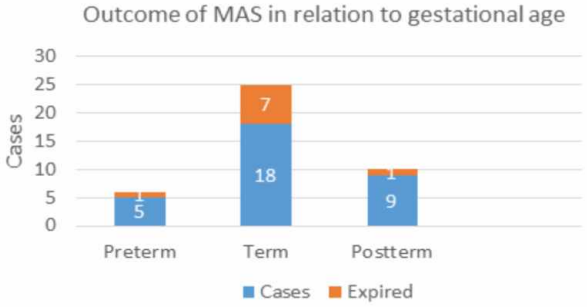
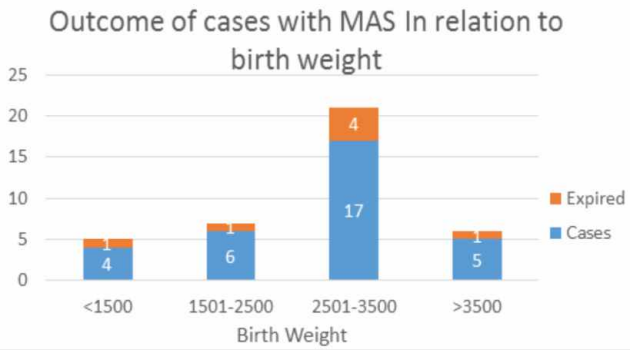


Table 3: Outcome of Meconium Aspiration Syndrome in relation to birth weight

Birth Weight	Cases	Expired	Percentage
<1500	4	1	12.5
1501-2500	6	1	18.75
2501-3500	17	4	53.12
>3500	5	1	15.62



Discussion:

Meconium aspiration syndrome is seen in the newborn period and contributes significantly to the neonatal morbidity and mortality.[7] The objective was to study the complications of meconium aspiration syndrome and their outcome in relation to gestational age, birth weight. From this study we conclude that the incidence of meconium aspiration syndrome was more in term and post term neonates with appropriate birth weight between 2.5 to 3.5 kg born to primigravida mothers with prolonged duration of labour. Maternal illness was one of the main risk factor causing Meconium Aspiration Syndrome. Presence of thin meconium is not of much concern if babies were active. Severe the asphyxia, higher is the chance of thick meconium stained liquor and greater probability of Meconium Aspiration Syndrome.[8] It has an adverse outcome with low Apgar score, requires resuscitation at the time of delivery and severe Hypoxic Ischaemic Encephalopathies are the most common complication with birth asphyxia causing most of the deaths. Thus, good intrapartum monitoring and Neonatal management can reduce the incidence and complications of Meconium Aspiration Syndrome.[9] A study conducted by Dr. Venkataseshan Sundaram on Predictors of Mortality in Neonates with Meconium Aspiration Syndrome concluded that out of 172 neonates, 79 developed persistent primary pulmonary hypertension, 37 developed Hypotensive shock,29 developed Hypoxic Ischaemic Encephalopathy and 37 developed Myocardial Dysfunction and also observed that 44 died which were belonging to mean gestation age of 37week and birth weight being 2.5kg.[10]

Conclusion:

Meconium aspiration syndrome were associated with many complications with the commonest being Hypoxic Ischaemic Encephalopathy (30%). In this study, mortality rate was highest in gestational age more than 37weeks,being 77.7% and in birth weight between 2.5kg to 3.5kg, mortality rate is 57.14%. In recent years, there has been a decline in the mortality due to improved obstetric practice and neonatal intensive care management.

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