

# NEONATAL OUTCOME OF MECONIUM STAINED LIQUOR

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## ABSTRACT

**Background:** Meconium staining may have its effect on neonates. **Objective:** To determine the neonatal outcome in meconium stained liquor. **Methodology:** Study Design: Cross sectional study. Setting: Department of Obstetrics & Gynaecology, Sheikh Zayed Hospital, Rahim Yar Khan. Duration Of Study: From 12<sup>th</sup> May to 11<sup>th</sup> November 2013. Sampling Technique: Non-probability consecutive sampling. Data Collection Procedure: Total 149 cases of pregnant women meeting the inclusion criteria, presenting with complaint of watery, vaginal discharge and labour pain were registered. Patient included in the study were followed throughout the labour till delivery. Strict fetal heart rate monitoring was done by intermittent cardiotocography. A pediatrician attended all the babies. APGAR score, NICU admission, neonatal death, meconium aspiration syndrome, and birth-weight of the babies was recorded on specially designed proforma. Data Analysis Procedure. Collected information was entered into SPSS version 17 and analyzed. **Results:** A total of 149 patients were included in this study. Mean age of the patients was 23.47 ± 4.13 years, gestational age was 37 ± 4.13 weeks, APGAR score 6.73 ± 2.37 and mean birth weight of neonates was 3.59 ± 0.59 Kg. 57 babies (38.3%) were admitted to NICU, 21 neonates (14.0%) expired, satisfactory Apgar score was observed in 73 (49%) neonates, meconium aspiration syndrome was found in 26 cases (17.5%). **Conclusion:** Meconium staining of amniotic fluid is commonly observed phenomenon in labour and is frequently associated with prolonged labour. Meconium stained liquor is associated with increased incidence of poor APGAR score, neonatal nursery admission, meconium aspiration syndrome and neonatal death.

**Keywords:** Meconium, Outcome, Neonate.

JSZMC 2015;6(3):836-838

## INTRODUCTION

Meconium is the earliest stool of an infant, composed of material ingested during the time the fetus spends in the uterus. It contains intestinal epithelial cells, lanugo, mucus, amniotic fluid, bile and water. Meconium is almost sterile, viscous and sticky like tar and has no odor.<sup>1</sup> It occurs in approximately 12% of all fetuses,<sup>2</sup> and in many of these, the meconium is aspirated into fetal lungs. Meconium passage is associated with increased chances of baby born with poor APGAR scores, needing resuscitation at birth, admission to Nursery Intensive Care Unit (NICU) and perinatal death. The mortality rate for meconium aspiration syndrome (MAS) resulting from severe parenchymal pulmonary disease and pulmonary hypertension is as high as 20%. Other complications include air block syndrome and pulmonary interstitial emphysema which occur in 10-30% of infants with MAS.<sup>3</sup> As meconium is a major cause of neonatal morbidity and mortality, so early identification of high risk cases with improved neonatal and perinatal care can decrease perinatal mortality.<sup>4</sup> The objective of this study

was to determine the neonatal outcome in meconium stained liquor.

## METHODOLOGY

**Study Design:** Cross sectional study. **Setting:** Department of Obstetrics & Gynaecology, Sheikh Zayed Hospital, Rahim Yar Khan. **Duration Of Study:** This Study was carried out over a period of six months from 12<sup>th</sup> May to 11<sup>th</sup> November 2013. **Sampling Technique:** Non-probability consecutive sampling.

**Study subject:** Pregnant women, presenting with watery vaginal discharge and labour pain.

**Inclusion Criteria:** Gestation of 32-42 weeks, Singleton pregnancy (on ultrasound), Cephalic presentation (on ultrasound) and having ruptured membranes with meconium stained liquor at any stage of labour (on speculum examination)

**Exclusion Criteria:** Anomalous baby (e.g. neural tube defects, cardiac anomalies detected on ultrasound), previous caesarean section (assessed though history and documents of previous caesarean section), oligohydramnios (AFI < 7 cm on

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ultrasound), diagnosed case of pre-eclampsia (BP > 140/100mmHg), proteinuria 0.3gm/l (diagnosed on dipstick) and diagnosed case of gestational diabetes (BSL > 180mg/dl).

**Data Collection Procedure:** A total of 149 cases of pregnant women meeting the inclusion criteria, presenting with complaint of watery vaginal discharge and labour pain were registered. Patient included in the study were followed throughout the labour till delivery. Strict fetal heart rate monitoring was done by intermittent cardiotocography. A pediatrician attended all the babies. APGAR score, Neonatal ICU admission, neonatal death, meconium aspiration syndrome (MAS) and birth weight of the babies was recorded on specially designed proforma.

**Data analysis procedure:** Collected information was entered and analysed by using SPSS version 17.

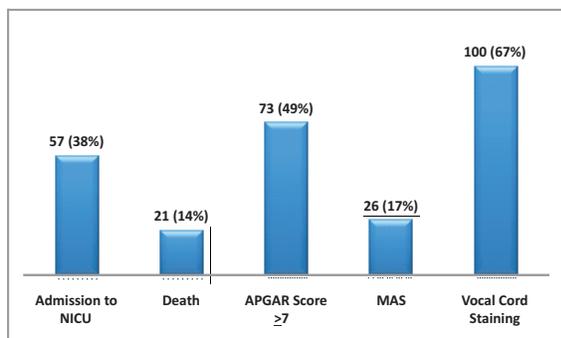
## RESULTS

A total of 149 patients were included in this study. Majority 70% of the patients were 20-30 years of age. (Table-I).

**Table I: Maternal characteristics**

Characteristics	No. of Patients	Percentage
<b>Age</b>		
< 20 years	26	17%
21-30 years	105	70%
31-40 years	18	13%
<b>Gravidity</b>		
PG	49	32%
G2-G3	82	55%
G4-G6	12	9%
>G6	6	4%

**Figure I: Neonatal outcome in meconium stained liquor**



Mean age of the patients was  $23.47 \pm 4.13$  year, gestational age was  $37 \pm 4.13$  weeks, APGAR score  $6.73 \pm 2.37$  and mean birth weight of neonates was  $3.59 \pm 0.59$  Kg. 57 babies (38.3%) were admitted to NICU, 21 neonates (14%) expired, satisfactory Apgar score was observed in 73 (49%) neonates, meconium aspiration syndrome was found in 26 cases (17.5%). (Figure I)

## DISCUSSION

The presence of meconium liquor is a serious sign of fetal compromise, which is associated with an increase in perinatal morbidity,<sup>5</sup> clear amniotic fluid on the other hand is considered reassuring. In earlier days, early amniotomy with active management of labour was done to detect meconium passed during labour. Amniotomy in labour is also commonly performed to detect meconium where fetal heart rate is unsatisfactory.<sup>6</sup> If meconium stained amniotic fluid (MSAF) is found, then continuous fetal heart rate monitoring is required for fetal well being. The exact etiology of MSAF remains unclear.<sup>7,8</sup> Aspiration of meconium during intrauterine life may result in or contribute to meconium aspiration syndrome (MAS), representing a leading cause of perinatal death.<sup>9</sup> Prolonged labour is also a risk factor for the passage of meconium as proved by Saunder et al,<sup>10</sup> who showed that prolonged labour is associated with worst outcome in MSAF group.

As meconium should always be considered a marker for fetal distress therefore there was a significant effect on the APGAR score of neonates.<sup>11</sup> In this study the mean APGAR score of neonates was  $6.7 \pm 2.3$ . this is comparable with the study of Shaikh et al,<sup>11</sup> where they reported APGAR score  $6.0 \pm 0.9$ . In present study, 57 (38.3%) of neonates were admitted to NICU. However, Scott et al,<sup>12</sup> reported the higher incidence as compared to our study of neonatal admissions to NICU.

Meconium aspiration syndrome was observed in 26 neonates (17.4%). Sood et al,<sup>13</sup> also showed a high incidence of meconium aspiration syndrome as in our study. Patil et al,<sup>14</sup> had reported 12.8% meconium aspiration syndrome. It might be due to the fact that meconium aspiration syndrome was primarily associated with acute hypoxia events late in labour or often a chronic prenatal disease related to acute events that occur late in labour or after birth and also depends on increasing consistency of meconium. Gupta et al,<sup>15</sup> found 4.9% mortality in meconium stained amniotic fluid group compared to 2.8% in

control. Khatun,<sup>16</sup> found 2.9% mortality in neonates. In our study, neonatal death occurred 14.1% of cases which is very high as compared to other studies.

## CONCLUSION

Meconium staining of amniotic fluid is commonly observed phenomenon in labour and is frequently associated with prolonged labour. Meconium stained liquor is associated with increased incidence of poor APGAR score, neonatal ICU, admission, meconium aspiration syndrome and neonatal death.

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