

Pregnancy Outcome in Cases of Meconium Stained Amniotic Fluid

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Abstract

Objective: Neonatal outcome in meconium stained amniotic fluid cases and correlation with maternal risk factors. *Methods:* it was an observational study at Sir Sunder Lal Hospital, Banaras Hindu University. This is a tertiary referral center that has a wide catchment area. Our plan was to collect data regarding antenatal history, intrapartum factors and neonatal outcome from laboring women who have meconium stained amniotic fluid (MSAF). *Results:* There were 42 women in MSAF group, 17 women out of 42 had thick meconium. 35 women were included who had no meconium staining. There were 72.7% unbooked and 27.3% booked pregnant women. 16.6% (7/42) proportion of women with meconium (MSAF) had FHR abnormality. 40.47% (17/42) proportion of women with meconium (MSAF) had CTG abnormality (chart 2). There was no relation with birth weight and MSAF in our study. *Discussion & Conclusion:* MSAF is the commonest Obstetric situation on the labor ward. Labor ward staff should be properly trained to deal with this situation, as if left unattended could lead to fetal/neonatal morbidity and mortality; while overenthusiastic management could lead to maternal complications. So, MSAF warrants a judicious approach.

Keywords: Fetal Distress; Meconium Stained Amniotic Fluid; Neonatal Outcome.

Introduction

Meconium stained amniotic fluid during labor is considered to be pathological since Obstetrics was incepted, although not exactly known when and how? Fetal distress detected by fetal heart rate auscultation or Cardiotocography method is suggestive of impending fetal asphyxia. There are other methods available nowadays especially in western society eg STAN monitoring, Fetal scalp blood sampling. In low resource countries eg like our country if no technology is available, at least color of amniotic fluid could give us an idea about fetal condition. Labor ward nurses and Obstetrics & Gynecology residents are taught about this as the basic part of their labor ward training. MSAF has a frequency of about 25% [1].

Meconium is passed from the gastrointestinal tract of the fetus if fetus is in distress. Distress leads to vagal stimulation, which opens up the GI sphincters and passage of GI contents in the form of meconium. It is a sign of distress except in case of breech presentation [2].

This passage of meconium is called Meconium Stained Amniotic Fluid (MSAF), which leads to poor Apgar score, meconium aspiration syndrome, NICU admission, neonatal morbidities and mortalities. It also increases maternal operative interference and associated complications.

Methods

It was an observational study at Sir Sunder Lal Hospital, Banaras Hindu University. This is a tertiary referral center that has a wide catchment area. Our plan

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was to collect data regarding antenatal history, intrapartum factors and neonatal outcome from laboring women who have meconium stained amniotic fluid (MSAF), and we did this on 42 women. 14 cases of MSAF had thick meconium. Thick meconium was defined as amniotic fluid like pea soup, and thin as light green staining of amniotic fluid.

We also collected data from laboring women who did not have meconium, a total of 35 women. The study period was May 2013 to August 2015.

Inclusion Criteria

1. Singleton pregnancies
2. Cephalic presentation
3. No fetal anomaly

Exclusion Criteria

1. Intrauterine death
2. Malpresentation
3. Caesarean section

Post dated pregnancy is defined as more than 40 weeks, whilst post term pregnancy is defined as more than 42 weeks. Ethical approval and informed consent was obtained. The data on excel can be found in the Obstetrics & Gynaecology Department of the Institute of Medical Sciences.

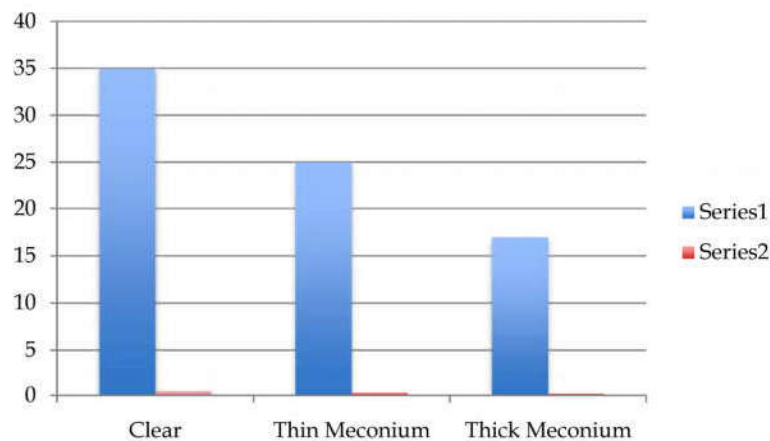
Table 1:

Amniotic Fluid (AF)	Clear AF	Thin meconium stained AF	Thick meconium stained AF
Number	35	25	17
Percentage	45.50%	32.46%	22.07%

Table 2: NICU admissions: Total 35 babies

No of NICU days	1 day	5 days	8 days	15 days	17 days
No of neonates	10 (28.5%)	13 (37.2%)	7 (22.8%)	3 (8.5%)	2 (5.7%)

Fig. 1: Amniotic fluid staining



Results

There were 42 women in MSAF group, 17 women out of 42 had thick meconium. 35 women were included who had no meconium staining. Age range was 22-34 years. There was no correlation with age; maximum MSAF was in 25 years women followed by 22 years. There were 14 (18.2%) women who were anaemic.

There were 28 pregnancies, which were postdated (28/77= 36.40%). All the postdated mothers had meconium staining. There were 17 women who were not term and they had preeclampsia-eclampsia. These 17 had thick meconium staining (Figure 1 & Table 1).

There were 72.7% unbooked and 27.3% booked pregnant women. 16.6% (7/42) proportion of women with meconium (MSAF) had FHR abnormality. 40.47% (17/42) proportion of women with meconium (MSAF) had CTG abnormality (Figure 2). There was no relation with birth weight and MSAF in our study.

IUGR incidence was 3/42 in the MSAF group (7.1%). Thick meconium in 17/42 (40.47%) cases was associated with low apgar score at 1 minute of life. 35 NICU admissions out of total 77 babies (45.45%). These admissions were in MSAF group 35/42 (83.3%) Figure 3 and Table 2 depicts number of days babies were in NICU. Proportion of babies died after birth was 5/77= 6.4% of neonates died after birth in total and 5/42 in MSAF group (11.9%).

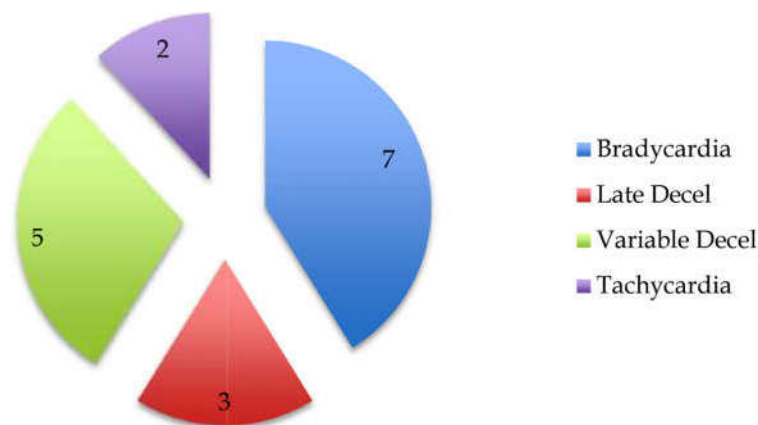


Fig. 2: CTG abnormalities

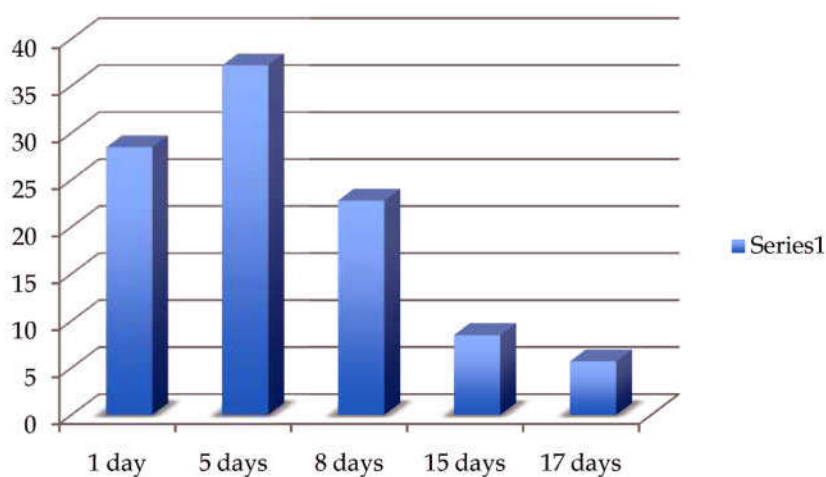


Fig. 3:

Discussion & Conclusion

There were 28 pregnancies, which were postdated ($28/77= 36.40\%$). This is similar to the study by Saunders et al [3]. Correlation between cardiotocography abnormalities and MSAF is found to be strong in our study. This is similar to study by Gupta et al in which fetal distress was a significant predictor of MSAF [4-6].

Thick meconium in 17/42 (40.47%) cases was associated with low Apgar score at 1 minute of life. A great proportion of neonates in the MSAF group were admitted in the NICU. The neonatal death was observed in the MSAF group only. This is in corroboration with the study done by Ziadeh and Erum et al [7-8].

MSAF is the commonest Obstetric situation on the labor ward. Labor ward staff should be properly trained to deal with this situation, as if left unattended could lead to fetal/neonatal morbidity and mortality;

while overenthusiastic management could lead to maternal complications. So, MSAF warrants a judicious approach. Prediction of MSAF takes experience and still not possible in all cases. High-risk mothers should be watched carefully on the labor ward. It is the management of mother and fetus during labor that makes all the difference.

This is a very small study from a University teaching hospital where large numbers of complicated cases are dealt with. In future a larger study would provide us more robust data.

List of Abbreviations

MSAF: meconium stained amniotic fluid

CTG: cardiotocogram

NICU: neonatal intensive care unit

Competing Interest

None to declare.

Authors' Contribution

UP conceptualized the study, analyzed and wrote.
GS did the data calculation.

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