



FETAL OUTCOME ASSOCIATED WITH MECONIUM STAINED LIQUOR DURING LABOUR

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ABSTRACT

Introduction: Meconium is a viscous green liquid and 10- 15% of all pregnancies will be complicated by meconium passage into amniotic fluid leading to develop complications to manifest as respiratory morbidity. Hence this study was aimed at finding out the incidence of meconium stained liquor and its significance on the neonatal outcome immediately after birth at a tertiary health centre.

Methodology: A Prospective observational study was conducted to study incidence of Meconium stained liquor by general periodic pelvic examination, APGAR scoring and neonatal examination.

Results: Incidence of Meconium staining was found in 49 (32.7 p.c). Majority of neonates 129 (86 p.c) had an APGAR score >7 and 21 (14 p.c) had APGAR <7 and 29 (19.3 p.c) of the neonates were admitted to NICU.

Conclusions: Screening and management of meconium stained amniotic fluid is essential periodically at the time of labour to prevent development of the respiratory distress to the infant.

KEYWORDS : Amniotic fluid, APGAR, Fetus, Labour, Meconium, meconium aspiration syndrome and Respiratory distress.

INTRODUCTION:

The word Meconium was derived from the Greek word meconium - arion' meaning 'opium - like'. This substance was so named because it is believed to induce fetal sleep. About 10 to 15% of all babies pass this substance prior to birth, and up to a third of these infants have respiratory distress that requires treatment.^{2,3} Meconium is a viscous green liquid that consists of gastrointestinal secretions-bile acids, mucus, pancreatic juice, cellular debris, amniotic fluid; swallowed vernix caseosa, lanugo, and blood. Irrespective of how we feel, and for whatever reason, 10-15% of all pregnancies will be complicated by meconium passage into amniotic fluid, and as many as 60% of infants with such complication would manifest respiratory morbidity.²⁻⁶

Once meconium is aspirated at delivery and meconium aspiration syndrome (MAS) becomes established, specific treatment is often difficult. Therefore prevention of the aspiration itself appears potentially the most effective form of management of the syndrome. With adequate oropharyngeal suction by obstetricians at delivery of head of baby, as well as a continuing postnatal suctioning and intubation by paediatricians when necessary, the MAS could be prevented.⁶

This study was aimed at finding out the incidence of meconium stained liquor and its significance on the neonatal outcome immediately after birth at a tertiary health centre.

METHODOLOGY:

A prospective observational study was conducted at the Obstetrics Department of Alluri Sitarama Raju Academy of Medical Sciences and Hospital (ASRAM), ELURU from September 2015 to August 2016. Around 150 women in gestation age of 37- 42 weeks were selected.

Women with singleton pregnancy, live foetus, and with gestational

age 37 – 42 weeks were included in the study. Women with multiple pregnancy, antepartum haemorrhage, any uterine surgeries and cephalo-pelvic disproportion were excluded.

Women who were taken as a part of the study were subjected to basic pelvic examination to rule out contracted pelvis and any other abnormalities of pelvis and its organs.

Every 3rd hourly pelvic examination is done to note the progress of labour in terms of dilatation, effacement and descent of the presenting part.

At about 3-4cm of cervical dilatation, if the membranes have not been ruptured spontaneously an artificial rupture of membranes was done to note colour of liquor and its correlation with fetal heart rate. Then depending on the colour of liquor, fetal heart rate pattern (tachycardia, Bradycardia/ fetal rate variability), she was taken for caesarean section or allowed to continue for vaginal delivery (interventions not included in the study).

After the baby is delivered, birth APGAR of 1 minute and 5 minutes was recorded. Babies with Meconium stained liquor and any other complication were shifted to NICU for observation.

Observations were compiled in MS Excel 2013 and results shown in tabulation and proportions. Chi square test was calculated online and contingency table.

RESULTS:

Out of total participants of 150 pregnant women in 37 – 42 weeks of gestation (table 1) majority were in the age group 20 – 30 years 134 (89.3 p.c), followed by below 20 years 9 (6 p.c) and above 30 years 7 (4.7 p.c).

Regarding parity (table 2) of the women 69 (46 p.c) were

primigravida, followed by 57 (38 p.c) 2nd gravida, 21 (14 p.c) 3rd gravida and 3 (2 p.c) > 4th gravida.

Among all the women 50 (33.3 p.c) women presented with some complications (table 3), majority of them 33 (22 p.c) had pregnancy induced hypertension, postdated pregnancy 12 (8 p.c), PROM 3 (2 p.c) and Oligohydramnios 2 (1.3 p.c).

Among the participants 24 (16 p.c) underwent Lower Segment Caesarean Section (table 4) and among them 11 (7.3 p.c) were Nulliparous & 13 (8.7 p.c) multiparous and remaining 126 (84 p.c) were spontaneous vaginal deliveries among them 58 (38.7 p.c) were nulliparous and 68 (45.3 p.c) multiparous. Chi square test was applied between Parity and LSCS and found insignificant.

Incidence of Meconium staining was found in 49 (32.7 p.c) where 15.3 p.c had thin meconium and 17.3 p.c had thick staining (table 5).

Majority of the neonates had birth weight 2.6 to 3 Kg 94 (62.7 p.c), followed by 2 – 2.5 Kgs 45 (30 p.c), < 2 Kg 5 (3.3 p.c) and > 3 Kg 4 (2.7 p.c). Majority of neonates 129 (86 p.c) had an APGAR score >7 and 21 (14 p.c) had APGAR <7. Only 29 (19.3 p.c) of the neonates were admitted to NICU.

Chi square test was applied between the neonatal outcomes and meconium staining and Parity which were not significant (table 6).

DISCUSSION:

The present study showed that regarding gestational age majority were in the age group 20 – 30 years 134 (89.3 p.c), followed by below 20 years 9 (6 p.c) and above 30 years 7 (4.7 p.c), similar to a study conducted by Acharya et al 7, where in age group 20 – 30 years 168 (81.95 p.c), followed by < 20 Years age 24 (11.7 p.c) and > 30 years 13 (6.3 p.c).

Regarding parity of the women 69 (46 p.c) were nulliparous and Multiparous were 81 (54 p.c), whereas in the study conducted by Acharya et al 7 nulliparous were 127 (61.9 p.c) and Multiparous were 78 (38.1 p.c).

In this study, 50 (33.3 p.c) of them showed complications like, 33 (22 p.c) had pregnancy induced hypertension, postdated pregnancy 12 (8 p.c), PROM 3 (2 p.c) and Oligohydramnios 2 (1.3 p.c). Where as in Acharya et al 7 study, postdated pregnancy was of high incidence 144 (70.2 p.c), followed by PIH 16 (7.8 p.c) and Oligohydramnios 3 (1.5 p.c).

Incidence of meconium staining liquor in this study was 49 (32.7 p.c), where as in Wing et al 8 and in study it was 27.9 p.c. Regarding mode of delivery, Caesarean Section was conducted on 24 (16 p.c) and in Wing et al 8 it was 14.7 p.c.

CONCLUSION:

The incidence of meconium stained liquor was 32.7 p.c which is high but no abnormalities were found in this study though there may be chances of developing respiratory distress evaluation of which is not a part of this study. When screened and managed early development of the same can be planned.

Table 1. Age wise distribution of Study participants

Age Group	No.	Percentage
< 20 years	9	6
20-30 years	134	89.3
>30 years	7	4.7
Total	150	100

Table 2. Parity wise distribution of Study participants

Parity	No.	Percentage
Primi	69	46
2 nd Gravida	57	38.0
3 rd Gravida	21	14.0

> 4 th Gravida	3	2
Total	150	100

Table 3. Complicated pregnancies

Complication	No.	Percentage
PIH	33	22
Post Dates	12	8
PROM	3	2
Oligohydramnios	2	1.3
Total	50	33.3

Table 4. Mode of delivery

Mode of delivery	Nulliparous	Percentage	Multiparous	Percentage
SPVD	58	38.7	68	45.3
Caesarean	11	7.3	13	8.7
Total	69	46	81	54

Chi square = 0.0003 df = 1 p = 0.98

Table 5. Incidence of Meconium stained Liquor

Meconium stained	No.	Percentage
Light (Thin)	23	15.3
Thick	26	17.3
No	101	67.3
Total	150	100

Table 6. Association of outcome of the neonate with Meconium staining and parity.

Outcome	Meconium	Parity			
	Stained n = 49 (%)	Not Stained n = 101 (%)	Nulliparous n = 69 (%)	Multiparous n = 81 (%)	
Birth Weight :	<2Kgs	2 (4.1)	3 (3)	2 (2.9)	3 (3.7)
	2-2.5Kgs	16 (32.7)	29 (28.7)	23 (33.3)	22 (27.2)
	2.6-3 Kgs	27 (55.1)	67 (66.3)	42 (60.9)	52 (64.2)
	>3Kgs	4 (8.2)	2 (2)	2 (2.9)	4 (4.9)
	X² = 4.11 df = 3 p = 0.25		X² = 0.999 df = 3 p = 0.801		
Apgar Score:<7	7 (14.3)	14 (13.9)	13 (18.8)	8 (9.9)	
	42 (85.7)	87 (86.1)	56 (81.2)	73 (90.1)	
	X² = 0.0049 df = 1 p = 0.944		X² = 2.486 df = 1 p = 0.115		
Admission to NICU	11 (22.4)	18 (17.8)	14 (20.3)	15 (18.5)	

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