



Study on risk factors for meconium stained liquor

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Abstract

Background: Meconium stained liquor is considered as indication of fetal distress and can be associated with Meconium aspiration syndrome which may cause perinatal mortality and morbidity. The aim of the study is to find out the maternal risks factors causing meconium stained liquor.

Methods: This study is observational study conducted on 100 patients with meconium stained liquor considering the inclusion criteria and the risk factors are assessed.

Results: In our study increased incidence of meconium was seen in primigravida and in postdated pregnancy. 55% of patient had cesarean section due to intrapartum fetal distress and 45% babies had NICU admission.

Conclusion: Meconium stained liquor is associated with high incidence of cesarean sections resulting in increased maternal morbidity.

Keywords: meconium, cesarean section, fetal distress, postdated pregnancy, primigravida

Introduction

Meconium is a term derived from Greek word mekonion which means poppy juice or opium like.

Meconium is a viscous green liquid which consists of GIT secretions, bile, bile acids, pancreatic juice, amniotic fluid, cellular debris, swallowed vernix caseosa, lanugo hair and squamous cells. Incidence of meconium stained amniotic fluid globally is approximately is 7-22%. Meconium aspiration syndrome occur in about 1-3% and in 10-30% of neonates, meconium is present below vocal cords [1].

The presence of Meconium stained liquor is considered as a sign of fetal distress. Fetal distress is alteration in fetal heart rate (FHR) mostly bradycardia.

Alteration in FHR, abnormal CTG, decreased pH of fetal scalp blood, passage of meconium are the strong indicators of fetal distress.

Meconium passage is rare before 34 weeks, and after 37 its incidence increases, about 10% @ 36weeks, 30% @ 40 weeks and 50% @ 42 weeks [2]. Under normal circumstances, meconium passage is prevented by lack of intestinal peristalsis because of low motilin levels, tonic contraction of anal sphincter and terminal cap of viscous meconium. Meconium is thought to be passed in response to hypoxia which causes mesenteric vasoconstriction induced gut hyper peristalsis, vagal stimulation and normal physiological function of mature fetus.

Obstetric grading of meconium is

Grade 1: large volume of amniotic fluid which is lightly stained by meconium.

Grade 2: good volume of amniotic fluid which is heavily stained by meconium.

Grade 3: absent or reduced volume of amniotic fluid such that meconium is very thick.

In 35% cases this meconium is aspirated into fetal lungs and in 10-40% there is perinatal mortality.

Aim of the Study

To assess the risk factors of meconium stained liquor.

Materials and Methods

Study design: Descriptive study

This study was conducted in Department of Obstetrics and Gynecology in ESIC MC and PGIMS from February 2020 to September 2020.

Detailed history, per abdominal and per vaginal examination was done. Women with meconium stained liquor following artificial rupture of membrane or with women complaining of leak per vagina were examined and assessed for risk factors and followed up.

Inclusion Criteria

Singleton pregnancy Cephalic presentation Gestational age >37 weeks Meconium stained liquor with medical comorbidities Primi or multigravida

Exclusion Criteria

Mal Presentation Multiple gestation chronic hypertension Type 2 Diabetes Mellitus.

Results

Table 1

Age	No of cases	Percentage
18-25	34	34
25-30	40	40
>30	26	26

In our study 34% belong to 18-25 years age, 40% belong to 25-30 years age and 26% belong to >30 years age.

Table 2

Gravidity	No of cases	percentage
Primigravida	55	55
multigravida	45	45
total	100	100

Incidence of MSL was more common in Primigravida, accounts to 55% of patients. Antepartum and intrapartum risk factors.

Table 3

Risk factors	Percentage
Oligohydramnios	17%
Post datism	24%
IUGR	13%
Pre eclampsia	12%
PROM	15%
Anemia	6%
GDM	12%
Hypothyroidism	21%
Cord around neck	29%

Other risks factors like Oligohydramnios (17%), Post datism (24%), IUGR (13%), Pre eclampsia (12%), PROM (15%), Anemia (6%), GDM (12%), Hypothyroidism (21%), cord around the neck (29%) were seen in association with meconium stained liquor.

Table 4

Mode of delivery	Percentage
Cesarean	55%
Vaginal delivery	45%

Cesarean section rate was higher in MSL seen in 55% in our study for which intra partum fetal distress was the main indication.

Discussion

Meconium is considered as soft marker for fetal distress which helps in taking obstetrical decision.

Higher incidence of MSL was seen in primigravida that is 55%, this was comparable to study done by Kamala Ghokroo *et al.* [3].

In present study 24% had postdated pregnancy which was comparable to study conducted by Becker *et al.*, Mundra *et al.*, Naveen *et al.* who found that meconium passage is more common with increased gestational age [4, 5] In postdated pregnancy there is placental ageing and fetal hypoxia causes vagal stimulation causing intestinal peristalsis to cause meconium excretion.

In study conducted by Khan *et al.* and Mundra *et al.*, higher rate of gestational hypertension were seen in meconium stained liquor patients [6, 7] Gestational hypertension was found in 14% in present study. It may be due to abnormal cyto trophoblastic invasion causing placental insufficiency and fetal hypoxia.

In study conducted by Naveen *et al.* IUGR was found as an independent risk factor for MSL. In our study IUGR was found in 13% of patients. IUGR fetus have more chance of hypoxia during labour which results in meconium passage.

In our study cord around the neck was found in 29% which was also studied in study conducted by C Nirmala *et al.* [8] at the time of delivery cord around the neck can cause hypoxia and meconium passage.

In the study GDM constitutes about 12%, there is role of reactive oxygen species in the pathogenesis of placental insufficiency and fetal hypoxia [8].

Oligohydramnios is seen in 17% of cases. Liquor <5 causes cord compression and fetal hypoxia during labor.

There is increased incidence of cesarean section in MSL causing fetal distress. Becker *et al.* reported that incidence of cesarean sections and operative deliveries are higher in MSL. Hypothyroidism, anemia was found as independent risk factors of MSL which was found in 21% and 6% respectively. Jaazayeri *et al.* concluded that MSL increases risk of postpartum endometritis but not chorioamnionitis [9].

Conclusion

Increased incidence of caesarean section was seen in MSL and also neonates born with MSL have increased mortality. Hence the perinatal mortality and morbidity associated with MSL can be reduced by identifying the high risk factors in antenatal period and for careful monitoring and timely decision.

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