



Meconium Stained Liquor and Neonatal Outcome

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ABSTRACT

AIMS & OBJECTIVES: To determine the fetal outcome and mode of delivery in patients with meconium stained liquor during labour.

MATERIALS & METHODS: This retrospective study was conducted from January 2013 to December 2015.

Out of 2124 deliveries, 250 patients who met the inclusion criteria were enrolled in our study

RESULTS: The results of fetal outcome and mode of delivery were analysed statistically using SPSS version 19. The Chi Square test was applied between Grades of Meconium and APGAR Score.p value< 0.05 which was statistically significant. Also, the study between Grades of Meconium and CTG pattern proved to be significant with p value < 0.05.

CONCLUSION: There was no adverse neonatal outcome with Meconium Stained Liquor alone.

86% of babies remained asymptomatic . Association of MSL with abnormal CTG is associated with poor outcome, increased caesarean section rate, increased neonatal complications.

KEYWORDS

APGAR Score, CTG, Meconium Stained Liquor, Meconium Aspiration Syndrome

I. Introduction

Meconium staining of the amniotic fluid is a sign of fetal distress, Conflicting outcomes have been reported in the labours, complicated by meconium staining of the amniotic fluid, varying with the degree of meconium staining.[1] Foetal distress is defined as alterations in the foetal heart rate (FHR)and the passage of meconium in response to the underlying foetal hypoxia. Variations in FHR, passage of the meconium in the amniotic fluid, abnormal CTG and decreased foetal scalp blood pH are strong indicators of fetal distress.[2] MSAF is associated with higher rate of caesarean delivery, increased need for neonatal resuscitation and meconium aspiration syndrome.[3] The risk factors for meconium stained amniotic fluid are both maternal and fetal. The maternal factors are hypertension, Gestational Diabetes mellitus, maternal chronic respiratory or cardiovascular diseases, post term pregnancy, preeclampsia, eclampsia. The fetal factors include oligohydramnios, intra-uterine growth restriction, poor biophysical profile.[4] Aspiration of meconium by the fetus remains relatively common cause of perinatal morbidity and mortality because it is difficult to prevent.[5] The fetus passes meconium into the amniotic fluid in 10%of all pregnancies, in 5% of these (1:200 of all pregnancies) the MSAFAS oc. Thick meconium by itself is not associated with adverse foetal outcome. However, the incidence of meconium aspiration syndrome increases in case of non-reassuring FHR and clinical condition of the newborn at birth.[6] The meconium aspiration syndrome can cause or contribute to neonatal death and in addition upto one-third of all cases in which aspiration occurs, develop long term respiratory compromise. meconium stained amniotic fluid is a clinical diagnosis with no practical confirmatory test.[7] However, various methods have been tried to detect the presence of meconium in liquor and to prevent meconium aspiration syndrome. The perinatal morbidity and mortality associated with meconium aspiration syndrome can be brought down if the high risks are identified in the antenatal period and careful decisions are made about the timing and mode of delivery and vigilant monitoring of the labour. This study was carried out to

determine foetal outcome and mode of delivery in pregnant women with meconium stained liquor.

II. Aims And Objectives

To determine the fetal outcome and mode of delivery in patients with meconium stained liquor during labour. **III. Inclusion And Exclusion Criteria** The inclusion criteria are gestational age >37 weeks, cephalic presentation, singleton pregnancy in patients with meconium stained liquor (grade I, II, III) after spontaneous or artificial rupture of membranes during labour. The exclusion criteria are gestational age <37 weeks, previous cesarean section, multiple pregnancy, non cephalic presentations, like breech transverse lie and compound presentation.

IV. Materials & Methods

This retrospective study was conducted from January 2013 to December 2015.The study was done on patients admitted to labour ward, in the department of Obstetrics andpaediatrics. Pregnant women with singleton pregnancy, cephalic presentation with more than 37 weeks of gestational age were studied. Out of 2124 deliveries, 250 patients had meconium stained liquor. All the patients in the study undergone a standardised form of labour management. The patients who fulfilled the inclusion criteria were enrolled in the study. Patients detailed history, gestational age, per abdominal examination, per speculum and per vaginal examination, admission tests including intrapartum CTG were recorded in a pre designed proforma. The patients were carefully monitored for the progress of the labour by plotting the parameters on a partogram. The fetal heart rate was strictly monitored by continuous electronic fetal monitoring. The fetal heart rate tracing were classified as normal, suspicious, abnormal according the NICE (National Institute of Clinical Excellence) guidelines.[8].The meconium staining of the amniotic fluid was classified as Grade I, II, III. By visual examination after spontaneous or artificial rupture of membranes. Grade I meconium stained liquor is translucent, light yellow green in colour, grade II MSL is opalescent with

deep green and light yellow in colour. Grade III is opaque and deep green in color. Delivery is expedited when fetal heart rate abnormalities were detected by safest mode of delivery either by instrumental vaginal delivery or caesarean section. All patients underwent full trial of labour and caesarian section was done only if trial of labour was unsuccessful or if there were obstetric indications including fetal distress. The APGAR score of neonates at 5 minutes, birth weight, NICU admission, the neonates who had meconium aspiration syndrome and birth asphyxia were recorded.

Results & Observations

Table 1: Distribution Of Meconium Stained Liquor Deliveries

Total number of deliveries	Meconium Stained Liquor deliveries n =250(11.77%)		
	Grade 1 MSL	Grade 2 MSL	Grade 3 MSL
2124	86 (34.5%)	102 (40.8%)	62 (24.8%)

Table 2: Foetal Outcome According To Grades Of Meconium Stained Liquor & Apgar Score

Grades of MSL	<7	≥ 7	Total
1	12 (13.95%)	74 (86.04%)	86
2	15 (14.70%)	87 (85.29%)	102
3	20 (32.25%)	42 (67.74%)	62
Total	47 (18.8%)	203 (82.2%)	250

Table 3- Neonatal Outcome According To Grades Of Meconium Stained Liquor

Grade of Meconium stained liquor	n=250		n=35		
	Asymptomatic Routine care at birth	NICU Admission	Ventilator	MAS	Birth asphyxia
1	79	7 (8.1%)	1	1	1
2	95	7 (6.86%)	4	3	1
3	41	21 (33.87%)	12	10	3
Total	215 (86%)	35 (14%)	17 (48.57%)	14 (40%)	5 (14.28%)

VI. Discussion:

Fetal condition during labour is usually assessed by fetal heart rate and checking the presence of meconium in the amniotic fluid. The passage of meconium may be a normal physiological event reflecting fetal maturity. It may on the other hand reflect fetal hypoxia or increased vagal activity from cord compression. Generally thick meconium is associated with poor perinatal outcomes. The exact reason of passage of meconium in the liquor is poorly understood. It could reflect the state of compensated fetal distress as it is suggested by few babies who are actually acidotic during labour. Acute or chronic fetal hypoxia can result in the passage of meconium in utero. Also the incidence of meconium passage during labour increases with gestational age 30% at 40 weeks, 50% at 42 weeks. The MSAF and its association are still very important determinants of perinatal morbidity and mortality and a successful management of such pregnancies is only possible after better understanding pathophysiology of meconium passage[9]. Presence of meconium below vocal cord is known as meconium aspiration and occurs in 20-30% of all infants with MSAF with around 12% mortality[10]. MSAF alone is not an indication for caesarian section, however with MSAF needs strict supervision during labour for better perinatal outcome[11]. The low

apgar scores may be because of direct vasoconstrictor effect of meconium on umbilical vein that results in vasospasm in leading to impaired placental blood flow[12]. Infants with APGAR Score <7 at 5 min are three times more likely to have abnormalities on neurological examination[13].

VII. Conclusion:

Meconium Stained Liquor alone is not associated with an adverse neonatal outcome, 86% of babies remained asymptomatic in spite of MSL and required only routine care. Increasing Grade of MSL is associated with increased adverse outcome. Association of MSL with abnormal CTG is associated with poor outcome, increased caesarean section rate, increased neonatal complications.

References

- Walker J. Fetal distress. Am J Obstet Gynecol 1959;77:94-98].
- Wong SF, Chow KM, Ho LC. The relative risk of foetal distress in pregnancy associated with meconium stained liquor at different gestations. AMJ. Obstet Gynaecol 2002;22:594-9]. Fenton AN, Steer CM. Fetal distress. Am J Obstet Gynecol 1962;83:354-59].
- Shaikh EM, Mehmood S, Shaikh MA. Neonatal outcome in meconium stained amniotic fluid - one year experience. J Pak Med Assoc 2010 ; 60:711-12].
- Hackey WE. Meconium Aspiration. In: Gomella TL. Neonatology. 4th Edition. New York: Lange Medical Books; 1999. P.507.
- Ashfaq F, Shah AA. Effect of amnioinfusion for meconium stained amniotic fluid on perinatal outcome. J Pak Med Assoc 2004 ;54:322-5].
- Paz Y, Solt I, Zimmer EZ. Variables associated with meconium aspiration syndrome in labour with thick meconium. Eur J Obstet Gynaecol Reprod Biol 2001; 94:27-30
- Tybulweicz AT, Clegg SK, Fonte GJ, Stenson BJ. Preterm meconium staining of the amniotic fluid: associated finding and risk of adverse clinical outcome. Arch Dis Child Foetal Neonatal Ed 2004; 89:F328-30].
- NICE, intrapartum guideline 55, London: national institute for health and clinical excellence, 2007
- Sinsck et al. A long standing incomprehensible matter of obstetrics : meconium stained amniotic fluid , a new approach to reason. Arch gynaecol obstet 2008;278:559-63].
- Khatun et al. ; fetal outcome in deliveries with MSL Bangladesh. J child health ,2009;33(2):41-50 [11]. Sasaikala et al. Perinatal outcome in relation to mode of delivery in meconium stained amniotic fluid. Indian J Pediatr ,1995;62:63-67.
- Althusler G, Hyde S. The meconium induced vasoconstriction : potential cause of cerebral and other fetal hypoperfusion and of poor pregnancy outcomes. J child neurol ,1989 ;4:137-42.
- Levene MI, Sands C, Grindulis H et al; Comparison of two methods of predicting outcome in perinatal asphyxia, Lancet 1:67-69, 1986 MSAF & perinatal outcome. J Obstet gynecol india 2006; 56(2): 128-130.