Original Article

A Cross-Sectional Study on Factors Related to Status of Meconium Stained Liquor Labour Patients Attended at Tertiary Level Hospital in Dhaka, Bangladesh

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Conflict of Interest: None
Received: 19.04.2021
Accepted: 04.11.2021
www.banglajol.info/index.php/JSSMC

Abstract

Background: *Meconium-stained liquor during labor is a common almost daily encountered problem.*

Objective*: The purpose of the study was to find out factors related to meconium-stained liquor affecting during labor.*

Methodology: *This is a cross-sectional, hospital-based observational study conducted in the Department of Obs & Gyne, Shaheed Suhrawardy Medical College Hospital, Dhaka. The cases with single, term pregnancy with cephalic presentation presented with meconium-stained liquor was selected. All the cases willingly participated in this study. Data collection and fetal assessment was conducted in the labor room. The meconium-stained liquor was clinically and completely in a structured questionnaire according to the events that happened pre and post-delivery including neonatal outcome data. Data was analyzed by computer using the SPSS program (Statistical Package of Social Sciences), version-22, and p value <0.05 considered as statistically significant.*

Result: *The mean age of the study group was 32.3±6.4 years. The Level of education of the study population, illiterate 12.0%, primary school 21.0%, majority SSC 33.0%, HSC 20.0% and graduation 14.0% and the occupation of the study patients mostly housewife 65.0%, least service.10.0%, business 14.0% and other professions 11.0% and mean gestational week was 40.12±1.43.*

Conclusion: *The meconium-stained liquor labour is a serious condition and related with some factors which can be addressed by these factors and the safety of maternal and fetal outcomes.*

Key Words:
Meconium stained amniotic fluid (MSAF), Amniotic fluid (AF).

[J Shaheed Suhrawardy Med Coll 2021; 13(2): 109-112]
DOI: https://doi.org/10.3329/jssmc.v13i2.65171

Introduction

The exact etiology of meconium-stained amniotic fluid is not clear. However, previous studies suggested that obstetric factors such as (prolonged labour, post-term pregnancy, low-birth weight babies, oligohydramnios, intrauterine growth retardation and hypertensive disorders of pregnancy), medical factors (cholestasis of pregnancy and anemia) and sociodemographic and behavioral risk factors (higher maternal age, maternal drug abuse especially tobacco and cocaine use) are the major contributory factors for the passage of meconium into the amniotic fluid. Evidence showed that the incidence of meconium-stained liquor is increasing as the gestational age increases. From 7 to 22% of term pregnancy were complicated by meconium-stained liquor worldwide [1].

Various factors are associated with the development of perinatal asphyxia. An institutional-based cross-sectional study in Pakistan revealed that instrumental delivery (n=46), spontaneous vertex delivery, cesarean section, prolonged rupture of membranes, meconium staining, maternal fever, and anaemia at delivery were significantly associated with birth asphyxia . According to the Ethiopia Health Demography Survey (EDHS), among the direct causes of under-five mortality, asphyxia was accounted for 14% of the death. However, in Tigray there is no study

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found to assess issues on prevalence and associated factors of perinatal asphyxia. Therefore, the main purpose of this study is to explore and address the gap in prevalence and associated factors of perinatal asphyxia in Tigray general hospitals. Moreover, it will have greater input to program managers and policy-makers in designing, proper implementation, and evaluation of programs on the reduction of under-five children mortality and improvement of children health care[2].

Risk factors that may cause stress on the foetus leading to MSAF include: placental ageing due to post-dated pregnancy, oligohydramnios, hypertensive disorders of pregnancy, gestational diabetes mellitus, overt diabetes mellitus, injudicious use of oxytocin and maternal drug use (cocaine, tobacco).The maternal risk associated with meconium stained liquor include: meconium-laden amniotic fluid embolism , two- to four-fold increase in puerperal metritis and increased risk of operative deliveries . The main neonatal complication of MSAF is meconium aspiration syndrome (MAS) which is the presence of meconium below the vocal cord. It is more frequent in post term neonates. Meconium aspiration syndrome refers to respiratory compromise with tachypnoea, cyanosis, and reduced pulmonary compliance in new-born infants. In literature, the incidence of MSAF in post-term pregnancies was at 25.45%, whereas a local study described the frequency of 16% in postdate deliveries. MSAF is a common finding during child birth but there is paucity of information on this phenomenon in our setting. It is a confusing issue because it can be due to either physiologic or a hypoxic insult to the foetus. Furthermore, the subjective nature of diagnosis of meconium staining, resuscitative measures and expertise in neonatal resuscitation are issues that cannot be ignored. Thus, this study aimed at describing the maternal and perinatal outcomes in childbirths with MSAF. This will provide scientific data that will help in the management of parturients with MSAF and it will enhance the understanding of the impact of MSAF in our health facilities[3].

Methodology

This is a cross sectional, hospital based observational study on. This study was conducted on 100 patients admitted to the labor ward with meconium stained liquor during labor in the Department of Obstetrics and Gynecology at Shaheed Suhrawardy Medical College Hospital, Dhaka from January, 2017 to June, 2017**.**

Selection criteria: Patients we included with this criteria.

Inclusion criteria: Term pregnancy (>37 weeks gestation)**,** Cephalic presentation**,** Live singleton normal pregnancy**.**

Exclusion criteria: Pregnant women in labour with not knowing last menstrual date, Eclampsia**,** Antepartum hemorrhage**,** Intrauterine fetal death**,** Congenital malformation**,** Pre-existing maternal heart or lung disease**,** Pregnancies with IUGR babies**,** Presentations other than cephalic.

Procedure followed: Following selection of cases, detailed history was taken and general and systemic examinations were done. Detailed obstetrical examination was undertake noting the presentation, position, height of fundus, amount of amniotic fluid, fetal heart rate, uterine contractions, and pelvic status. Use of any medications like oxytocin, sedatives, and analgesics were also noted. Detailed follow up of the progress of labor was done using partograph to observe whether the progress of labor was coinciding with normal progress. Patients whose progress are smooth according to the partograph was allowed to progress for normal vaginal delivery. Whereas those patients whose progress do not coincide with the partogram was closely observed and artificial rupture of membrane was done at an earlier stage. Also in high risk patients like those with post-datism, oligohydromnios or PIH, early ARM was done. Meconium staining of amniotic fluid was noted during artificial or spontaneous rupture of membranes and its consistency was noted, whether it is thin, moderate or thick. Correlation between cervical dilatation and appearance of meconium in amniotic fluid was noted. Also the fetal heart rate pattern was noted and accordingly the mode of delivery was decided. After birth the newborn was examined by the obstetrician and neonatologist with continuous follow up daily till discharge from the hospital and re-examined after 15 days in OPD. Fetal outcome was measured by APGAR scores at 1st and 5th minutes, weight, sex, requirement of neonatal resuscitation, admission in neonatal ward and intensive care unit. Relevant investigations including chest X-ray was carried out.

Data analysis: After collection of each day, the data were checked; followed by editing and cleaning to detect errors or omissions and to maintain consistency and validity of the data. Then the data were entered into the computer using Statistical Package for Social Sciences (SPSS-22 version) software (SPSS Inc, Chicago, IL, USA). The results were presented in tables and figures. The statistical terms include in the study was mean, standard deviation, frequency and percentage.

Results

Table-1: shows the age of the study group, less than 20 years old 13(8.7%), between (20-29) years old 48.0%, between (30-39) years old 32.0% and 40 or more than 40 years old 12.0%. Mean±SD age was 32.3±6.4 years and the Level of education of the study population, illiterate 12.0%, primary school 21.0%, SSC 33.0%, HSC 20.0% and graduation 14.0%.and the occupation of the study patients, housewife 65.0%, service 10.0%, business 14.0% and other profession 11.0%.

Table I

Distribution of study population according to age education status and occupation (n=100)

Age in years	Frequency	Percent
Less than 20	8	8.0
20 – 29	48	48.0
30 – 39	32	32.0
40 or more	12	12.0
Education	Frequency	Percent
Illiterate	12	12.0
Primary school	21	21.0
SSC	33	33.0
HSC	20	20.0
Graduate & above	14	14.0
Occupation	Frequency	Percent
House wife	65	65.0
Service	10	10.0
Business	14	14.0
Other	11	11.0
Total		100.0

Table-II: shows CTG available (77.0%), and not available (23.0%).

Table-II

Distribution of study population according to CTG available (n=100).

CTG available	Frequency	Percent
Yes	77	77.0
No	23	23.0
Total	100	100.0

Figure 1 shows the incidence of meconium passage during labhour increases with gastational age; 59% in 40-42 weeks and 41% in 37-40 weeks.

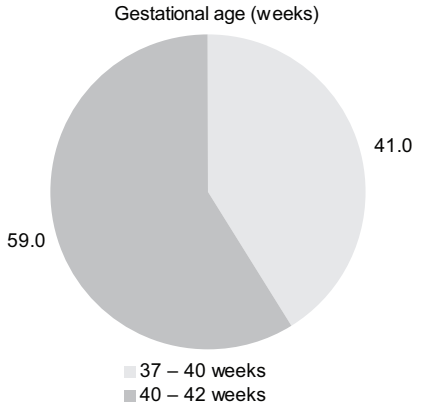

Figure-1: *Pie diagram showing the gestational weeks of the study patients*

Discussion

This cross-sectional hospital-based observational study was conducted at the Department of Obstetrics and Gynaecololgy, Shaheed Suhrawardy Medical College Hospital, Dhaka. Hundred patients who admitted to the labor ward with meconium stained liquor during labor were included for the study sample.

Between 15% and 20% of term pregnancies are associated with meconium-stained liquor (MSL), which, in the vast majority of labour, is not a cause of concern. However, in some circumstances, the passage of meconium in utero is associated with significant increases in perinatal morbidity and mortality. The aspiration of meconium into the lungs during intrauterine gasping, or when the baby takes its first breath, can result in a life-threatening disorder known as meconium aspiration syndrome and this accounts for 2% of perinatal deaths.

In the present series maximum 48.0% patients were within 20 to 29 years age group followed by 32.0% age 30-39 years. All patients were within 19 to 42 years age group and mean age was 32.3 (±6.85) year. Educational status of the patients revealed illiterate 12.0%, primary school 21.0%, SSC 33.0%, HSC 20.0% and graduation 14.0%. These findings correlate with study conducted by Parvin[7] who showed maximum 52.0% patients were within 25 to 30 years age group followed by 34.0% below 25 years and 14.0% above 30 years age group. 27.06 (±3.85) year. Educational status of the patients revealed maximum 48.0% were educated up to secondary level, 24.0% up to higher secondary, 18.0% primary and 10.0% graduate and above level.

In present study the incidence of meconium passage during labour increases with gestational age 59% in 40-42 weeks and 41.0% gestational weeks within 37-40. Mean (±SD) gestational age was 40.12±(1.43) weeks, which was comparable with the study conducted by Miller[4] having mean gestation age of 39.82 weeks. Rosario[5] in his study found mean gestational age of 39.62 weeks and Parvin[6] showed 90.0% had gestational age less than 40 weeks and 10.0% had more than 40 weeks.

The CTG changes commonly reflect mechanical stress on the fetus such as head compression during the second stage of labour, in our study 77.0% the CTG available for the cases of meconium stain liquor, this result similar to study by Khazardoost 66.6% CTG available for patient.[7]

Conclusion

The meconium-stained liquor is related to educational status and social status to get a prompt decision and available CTG diagnosis makes the situation for a better outcome.

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