ORIGINAL ARTICLE

Determination of Meconium Stained Liquor among Fetal Distress Lead Cesarean Mothers

SYEDA TAHIRA SHEREZAI, SHAZIA BATOOL, AMNA NOOR, SANA JAVED, AYESHA HUSSAIN SIAL, MUHAMMAD KASHIF MUNIR

1. Senior Registrar, DHQ, Kasur
2. Consultant Gynecologist & Obstetrician, Shazia Zahid Medical Complex Lahore.
3. Woman Medical Officer, DHQ, Attock.
4. Woman Medical Officer, DHQ, Sheikhupura.
5. Senior Research Officer, HRI-NIH Research Centre King Edward Medical University Lahore

Correspondence to Dr. Syeda Tahira Sherazi, Email: dtterahsherazi@yahoo.com, Mobile: 03324649936

ABSTRACT

Aim: To determine the frequency of meconium stained liquor in females undergoing cesarean section due to fetal distress.

Methods: This descriptive study was conducted at Unit III, Department of Obstetrics & Gynecology, Ganga Ram Hospital, Lahore during August 2018 to February 2019.

Results: A total of 240 females fulfilled selection criteria. After taking informed consent their demographic all females underwent cesarean section. During cesarean section, amniotic fluid was evaluated for meconium staining. All the information was recorded in pre-designed Performa. Data was entered and analyzed in SPSS.

Conclusion: Present study suggests a higher frequency of meconium stained liquor and a higher gestational age is associated with higher frequency of meconium stained liquor while no association of age, parity strata and BMI were found.

Key words: Cesarean section, pregnancy, trimester, parity, Meconium Aspiration Syndrome, Meconium Stained Liquor.

INTRODUCTION

Meconium stained liquor or meconium stained amniotic fluid (MSAF) is a distressing indication of compromised foetus and linked to the poor neonatal outcomes. Incidence of MSAF ranged from 7% to 22%

One of the features involved in around 27.3% neonatal casualties comprised at least history or proof of meconium passageway in the course of labour. However, meconium passageway is not communal afore 34 weeks of gestation whilst incidence gradually rises after this grey zone time.

Meconium liquor staining or MSAF has been thought from long as a signal of neonatal distress and is traditionally considered as a sign of imperative labour till now. Though the meticulous response to hypoxia,

Maternal factors comprise placental insufficiency, pre-eclampsia, maternal hypertension, maternal tobacco or drug addiction and oligohydramnios are also considered in meconium passage through uterine.

Neonates predisposed through MSAF are more sensitive for development of respiratory distress as compared to live births with clear fluid. Perinatal demises are presumed due to MSAF amongst the mothers comprise very low or even no risk of obstetric hitches. High rates of caesarean deliveries, instrumental deliveries, low birth-weights, foetal distress, admission of neonates in intensive care units and neonatal mortalities are also associated with MSAF.

Routine females underwent cesarean section due to fetal distress, meconium staining is the most common problem. But literature showed variable evidence and reported the frequency of meconium staining very low than expectations. Moreover, there is no local evidence available in this regard. Therefore present study was conducted to get local evidence and implement the results of this study in local setting. Aim of this study was to determine the frequency of meconium stained liquor in females undergoing cesarean section due to fetal distress.

METHODOLOGY

Study Design: Descriptive study.

Study Settings: Study was conducted at Unit III, Department of Obstetrics & Gynecology, Ganga Ram Hospital, Lahore during August 2018 to February 2019 after permission from hospital ethical committee.

Sample Size A total of 240 females is calculated with 95% confidence level, 3.5% margin of error and taking expected percentage of meconium stained liquor i.e. 8.2% in females undergoing cesarean section due to fetal distress.

Inclusion and Exclusion Criteria: All females aged 18-40 years, parity≤5 presenting at gestational age >37 weeks on (LMP) undergoing cesarean section due to fetal distress were included in this study. All women having multiple pregnancy, breech presentation, IUOR (ultrasound), Oligohydramnios or polyhydramnios, Females with chronic or gestational hypertension (BP≥140/90mmHg), diabetes (BSR≥186mg/dl), abnormal LFTs (AST>40IU, ALT>40IU), RFTs (serum creatinine>1.2mg/dl), anemia (Hb<10g/dl), pelvic inflammatory diseases, ectopic pregnancy were excluded in this study.

Data Collection Procedure: A total of 240 females fulfilled selection criteria were enrolled in the study from operation theatre of Department of Obstetrics & Gynecology, Ganga Ram Hospital, Lahore. After taking informed consent their demographic profile i.e. name, age, gestational age, parity and BMI were noted. Then all females underwent cesarean section under spinal anesthesia by researcher herself. During cesarean section, amniotic fluid was evaluated for meconium staining. If meconium present in liquor, then meconium stained liquor was labeled (as per operational
definition). All this information was recorded in pre-designed
forms.

Statistical Analysis: Data was entered and analyzed in SPSS. Mean±SD was calculated for quantitative variable like age, gestational age and BMI. Frequency and percentage was calculated for meconium stained liquor. Parity was presented as frequency. Data was stratified for age, parity, gestational age and BMI. Post-stratification, chi-square was applied for meconium stained liquor. P-value ≤0.05 considered as significant.

RESULTS

The mean age of patients was 29.05±6.22 years, the mean gestational age was 39.48±1.09 weeks and mean BMI of patients was 26.45±4.70kg/m². As depicted in Table 1. There were 35(14.6%) patients of parity 0, 72(30%) had parity 1, 47(19.6%) had parity 2, 46(19.2%) had parity 3 and 40(16.7%) had parity 4. Maximum 40(16.7%) patients had parity 4, 66(29.0%) had parity 3, 51(77.3%) had parity 2, 115(94.3%) had parity 1 while 200(83.3%) mothers were primigravida. A recent study with larger sample size of 1898 maternal patients and multiparous patients, the difference was significant (p<0.05). In primigravida patients and multiparous patients, the difference was insignificant (p>0.05). In patients with normal BMI, overweight patients and obese patients, the meconium stained liquor showed insignificant (p>0.05) difference as shown in Table 2.

Data was stratified for age, gestational age, parity and BMI of patients. In patients aged 18-29 years and 30-40 years, the meconium stained liquor showed insignificant (p>0.05) difference. In patients delivered during 38-39 weeks and 40-41 weeks were compared and the difference was significant (p<0.05).

Similarly a prospective study was undertaken in Civil Hospital Karachi observed the grades of MSL to compare the frequency of fetal outcomes. Results showed the grade MSL II was the commonest as 40%, grade I MSL remained 30% and grade III

DISCUSSION

Troublesome situation occurs due to MSAF for both of pediatrician as well as obstetrician. Since the situation is reportedly to be associated with exaggerated amounts of maternal operations, neonatal morbidity and mortality. The rate of MSAF are however variable in studies whilst in the range of 12-20%.

Presently the meconium stained liquor was present in 40(16.7%) mothers while absent in 200(83.3%) patients as presented in Figure II. The meconium stained liquor was present in 40(16.7%) patients while absent in 200(83.3%) patients as presented in Figure II.

Table 1: Description of Age, Gestational Age and BMI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Age (Years)</th>
<th>Gestational Age (weeks)</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>29.05</td>
<td>39.48</td>
<td>26.45</td>
</tr>
<tr>
<td>SD</td>
<td>6.22</td>
<td>1.09</td>
<td>4.70</td>
</tr>
<tr>
<td>Minimum</td>
<td>18</td>
<td>38</td>
<td>18.50</td>
</tr>
<tr>
<td>Maximum</td>
<td>40</td>
<td>41</td>
<td>34.93</td>
</tr>
</tbody>
</table>

Table 2: Stratification of Meconium Stained Liquor with Confounding Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meconium Stained Liquor</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>18-29</td>
<td>23(16.8)</td>
<td>114(83.2)</td>
</tr>
<tr>
<td>30-40</td>
<td>17(16.5)</td>
<td>86(83.5)</td>
</tr>
<tr>
<td>Gestational Age (weeks)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>38-39</td>
<td>7(5.7)</td>
<td>115(94.3)</td>
</tr>
<tr>
<td>40-42</td>
<td>22(28.0)</td>
<td>85(72.0)</td>
</tr>
<tr>
<td>Parity Strata</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Primigravida</td>
<td>3(8.6)</td>
<td>32(91.4)</td>
</tr>
<tr>
<td>Multiparous</td>
<td>37(18.0)</td>
<td>168(82.0)</td>
</tr>
<tr>
<td>BMI</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Normal</td>
<td>14(14.1)</td>
<td>85(85.9)</td>
</tr>
<tr>
<td>Overweight</td>
<td>11(14.7)</td>
<td>64(85.3)</td>
</tr>
<tr>
<td>Obese</td>
<td>15(22.7)</td>
<td>51(77.3)</td>
</tr>
</tbody>
</table>

Figure I: Distribution of parity

Figure II: Distribution of Meconium Stained Liquor
also found to be 30%. Still birth was 2.0%, poor Apgar score was 24.7% and rate of NICU admission was 28%. Maternal age, parity and gestational age effects were statistically significant on grade of liquor (p<0.05)17. Thus the results are not comparable to presenting findings as these factors had no significance in present study.

Stratification of data for age, gestational age, parity and BMI of patients was also analyzed to see the confounding factors. Only deliveries during 38-39 weeks of gestational age showed significant difference (p<0.05) as compared to the deliveries during 40-41 weeks of gestational age while rest of the factors had no significant difference in this study. A report suggested that meconium stained liquor and fetal distress were present in 30.4% pregnancies during gestational ages of 40-41 weeks while 45.5% of same in deliveries of more than 41 weeks showing direct proportion to higher gestational age.18

Findings thus support statements that occurrence of meconium in absenteeism of fetal heart anomalies is usually not indicative of compromised foetus and does not certify the instantaneous delivery. Though following preliminary hypoxic episode starting meconium passage, successive repetitive episodes because of elongated labour or anomalous activity of uterine may originate sever asphyxia following acidosis among foetus. This kind of hypoxic events may be prevented through careful monitoring of labour and optional care of neonate following birth.4 A strong association of postdate pregnancies with higher frequency of meconium stained liquor has also been reported11 but not studied in present study thus deficiency in this study and a future prospect.

Present study suggests a higher frequency of meconium stained liquor as compared to other studies. Similarly a higher gestational age is associated with higher frequency of meconium stained liquor while no association of age, parity strata and BMI were found.

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Conflict of Interest: Authors have no conflict of interest.

Author’s Contribution: All authors have significant contribution in this study. STS conceived the idea and designed the project, SB, AN collected the data, SB, SJ and AHS wrote the paper, SJ and AHS observed the clinical relevance of data, MKM and SJ revised the manuscript, STS and MKM did the data analysis.

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