Increasing Severity of Oligohydramnios: A Risk Factor for Outcome

Sunita Ghike, Gayathri Reddy, NW Ghike

ABSTRACT

Background: Oligohydramnios is an important obstetric complication, so this study was conducted to determine the correlation between AFI and perinatal outcome.

Materials and methods: Design: Prospective case control (longitudinal observational study).
Place: Department of Obstetrics and Gynecology, NKP Salve Institute of Medical Sciences, Nagpur.
Duration: 1 Nov. 2008 to 1 Nov. 2010
Study population: 100
Group 1: AFI ≤ 5 cm severe oligohydramnios.
Group 2: AFI > 5 cm ≤ 8 cm borderline oligohydramnios.
Gestational age: 37 to 42 weeks.

Results: In presence of low AFI there is increased incidence of perinatal mortality.

Conclusion: Oligohydramnios is a significant high-risk factor for adverse perinatal outcome and low AFI is a method of fetal surveillance.

Keywords: AFI, MSD, FD, Perinatal outcome, NICU admission.


OBSERVATION AND RESULTS

• Of the 100 study population 37 women fell into group 1, i.e. oligohydramnios (AFI ≤ 5 cm) and 63 women in group 2, i.e. borderline oligohydramnios (AFI > 5 cm and ≤ 8 cm) (Table 1).
• The mean age of women in group 1 was 24.65 ± 4.1 SD years and in group 2 the mean age was 24.00 ± 4.2 SD years.
• Majority of the women in both the groups were either nulliparous or para 1.
• Mean age of gestation in group 1 was 40.30 ± 1.64 weeks and in group 2 was 40.08 ± 1.61 weeks.
• Group 1 women (severe oligohydramnios) showed maximum antenatal complications (54.05%) compared to group 2 (47.62%). When group 1 was compared with group 2 there was no statistical significance (Table 2).
• Group 1 was associated with maximum antenatal complications like IUGR, PIH and PIH + IUGR, etc. as compared to group 2.
• Meconium stained liquor was found more in group 1 as compared to group 2 and when compared after applying statistical test (Chi-square) the p-value was significant (Table 3).
• The cesarian section for FD was significantly higher in group 1 (29.73%) compared to group 2 (9.52%) and the difference was statistically significant—Chi-square 6.74 and p-value < 0.01.
• The need for NICU admissions was higher in group 1 (43.24%) compared to group 2 (19.05%) and it was...
Increasing Severity of Oligohydramnios: A Risk Factor for Outcome

Increasing Severity of Oligohydramnios: A Risk Factor for Outcome

Table 1: Distribution of women in two groups (n = 100)

<table>
<thead>
<tr>
<th>Groups</th>
<th>AFI</th>
<th>No. of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>≤5 cm</td>
<td>37</td>
</tr>
<tr>
<td>Group 2</td>
<td>&gt;5 cm and ≤8 cm</td>
<td>63</td>
</tr>
</tbody>
</table>

Table 2: Distribution of complications in two groups (n = 100)

<table>
<thead>
<tr>
<th>Complications</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (+)</td>
<td>20 (54.05%)</td>
<td>30 (47.62%)</td>
</tr>
<tr>
<td>No (–)</td>
<td>17 (45.95%)</td>
<td>33 (52.38%)</td>
</tr>
</tbody>
</table>

Table 3: Distribution of meconium stained liquor in two groups and p-value

<table>
<thead>
<tr>
<th>Nature of amniotic fluid</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Chi-square (group 1 vs group 2)</th>
<th>p-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin MSL</td>
<td>11 (29.73%)</td>
<td>7 (11.11%)</td>
<td>7.33</td>
<td>&lt;0.01</td>
<td>Significant</td>
</tr>
<tr>
<td>Thick MSL</td>
<td>9 (24.32%)</td>
<td>10 (15.87%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear liquor</td>
<td>17 (45.95%)</td>
<td>46 (73.02%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>37 (100%)</td>
<td>63 (100%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Distribution of NICU admission in two groups and their p-value

<table>
<thead>
<tr>
<th>Groups</th>
<th>NICU admissions</th>
<th>Percentage</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>16</td>
<td>43.24</td>
<td>6.77</td>
<td>&lt;0.01</td>
<td>Significant</td>
</tr>
<tr>
<td>Group 2</td>
<td>12</td>
<td>19.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Increasing Severity of Oligohydramnios: A Risk Factor for Outcome

Increasing Severity of Oligohydramnios: A Risk Factor for Outcome

statistically significant—Chi-square 6.77 and p-value < 0.01 (Table 4).

• The percentage of neonatal deaths was significantly higher in group 1 (10.8%) as compared to group 2 (3.17%), but the difference was not statistically significant.

DISCUSSION

Abnormal Fetal Heart Rate

In the present study in group 1—45.95%, in group 2—23.8% and in group 3—14% women had abnormal fetal heart rate indicating higher percentage of women with abnormal fetal heart rate in group 1 followed by group 2. Observations of the present study are similar to the study by Rutherford et al (1987),1 Robson et al (1992),2 Tsang et al (1998),3 Magann et al (1999),4 Casey et al (2000),5 Phoolchandra et al (2000)6 and Raj Sriya et al (2001)7 who also found higher percentage of women with abnormal fetal heart rate in group 1 compared to group 2 (Table 5).

Meconium Stained Liquor

In the present study 54.05% of women in group 1 had meconium stained liquor compared to 26.98% in group 2 indicating significantly higher percentage of women with meconium stained liquor in group 1 followed by group 2. In the study by Conway et al (1998)8 the percentage of women with MSL was almost similar in group 1 (24%) and in group 2, signifying no difference in the occurrence of MSL in these groups. In a study conducted by Jeng et al (1992)9 it was found that there was no significant difference in the percentage of women with MSL in group 1 (66.7%) and group 2 (62.1%) (p > 0.05 between groups 1 and 2). But in most of the studies conducted by Rutherford et al (1987),1 Sarno et al (1989),10 Robson et al (1992),2 Ergun et al (1998),11 Tsang et al (1998),3 Magann et al (1999),4 Casey et al (2000)5 and Raj Sriya et al (2001)7 the percentage of women with MSL was significantly higher in group 1 compared to group 2 (see Table 5).

Cesarean Section for Fetal Distress

It was found that 29.73% of women in group 1 underwent LSCS for FD while 9.52% in group 2. So the rate of LSCS for FD was significantly higher in group 1 followed by group 2 in the present study. In the studies conducted by Sarno et al (1989),10 Jeng CJ et al (1992), Robson et al (1992),2 Conway et al (1998), Phoolchandra et al (2000) and Raj Sriya et al (2001) also the rate of LSCS for FD was higher in group 1 when compared to group 2 which is similar to that found in the present study. So the discovery of decreased AFV should alert the obstetrician to consider that the woman is at increased risk and should warrant increased antepartum surveillance (see Table 5).

CONCLUSION

• It was found that the occurrence of abnormal FHR was significantly higher in severe oligohydramnios group 1 (45.95%) followed by borderline oligohydramnios group 2 (23.8%).
• Meconium stained liquor was found more commonly in severe oligohydramnios group 1 (56.05%), followed by borderline oligohydramnios group 2 (26.98%).
• Fetal distress as the indication for cesarean section was significantly higher in severe oligohydramnios group 1 (29.73%) followed by borderline oligohydramnios group 2 (9.52%).
• The percentage of neonates with APGAR <7 at 1 minute was higher in severe oligohydramnios group 1 (32.43%) followed by borderline oligohydramnios group 2 (17.46%).
• The percentage of neonates with APGAR <7 at 5 minutes was also higher in severe oligohydramnios group 1 (13.51%) followed by borderline oligohydramnios group 2 (3.17%).
So the above study concludes that amniotic fluid is a helpful tool in determining high-risk patients during labor. The high statistical significance between low AFI and prediction of CS for FD would help to identify patients who may require an emergency CS with a sensitivity of 84.61%, specificity of 47.05%, PPV of 55% and NPV of 72.72%. So AFI when used as an ‘admission test’ in the intrapartum period can categorize the fetuses into ‘high-risk’ and ‘low-risk’ depending on their susceptibility to FD. In the presence of low AFI, the incidence of MSL, abnormal FHR, low Apgar, rate of LSCS, low birth weight, NICU admissions and perinatal mortality are high. So determination of AFI can be used as an adjunct to other fetal surveillance methods to identify fetuses at risk of poor perinatal outcome.

REFERENCES