Study of pregnancy outcome using ICMR antenatal scoring method

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To find the pregnancy outcome in urban slums using ICMR antenatal scoring.
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ABSTRACT

Research Question: To find the pregnancy outcome in urban slums using ICMR antenatal scoring.

Settings: 56 AWCs were selected randomly which amounted to approximately 25% of the total functional AWCs in the study area.

Study Design: Community based prospective study.

Participants: Pregnant females beyond 28 weeks of gestation and neonates up to 7 days of birth.

Methodology: 303 pregnant females registered at 28 week of gestation and beyond were followed up till 7 days after parturition.

Results: ICMR antenatal scoring of pregnant women revealed that 57.4%, 23.4% and 6% had mild, moderate and severe risk respectively. Remaining 13.2% women had no risk. Neonatal morbidity was most common adverse pregnancy outcome (84.2%) observed followed by stillbirths (10%) and early neonatal death (5.8%). 61% of neonatal morbidity, all still births and early neonatal deaths occurred in mothers having severe to moderate risk.

Key Words: Neonatal outcome, Neonatal morbidity, ICMR Antenatal Scoring
INTRODUCTION

Pregnancy and Childbirth should be an occasion for rejoicing, however, sometimes life threatening complications may occur which if inappropriately managed could lead to maternal death or disability. Early registration, regular monitoring of pregnancy, identification and referral of high risk pregnancies and safe delivery practices by trained personal are essential keys to improving outcome. This is especially important for high risk pregnancies as these fetuses need extra-care in-utero as well as ex-utero.

Risk factors that develop during pregnancy, risk factors present before pregnancy and problems in a previous pregnancy can make a pregnancy as high risk pregnancy. In these cases, if extra attention and proper care is not given these pregnancies can land up in poor fetal outcome.

The identification of factors known to adversely affect the neonatal outcome has resulted in the development of several high risk scoring systems. Risk scoring is formulated method of recognizing, documenting and cumulating antepartum and intrapartum factors, in order to predict later complications for mother, foetus and infant. A number of high risk pregnancy screening techniques have been proposed by various authors such as Goodwin,(1) Datta and Das(2) and Bhargava.(3) ICMR(4) has also proposed an ICMR antenatal scoring method and has utilized the concept of synergism of foetal risk.

Most of the information regarding the risk factors influencing pregnancy outcome is hospital based and does not reflect the real situation in a community. Hence in this context, present study is being conducted to study the risk factors and their association with pregnancy outcome in Anganwadi centers of Jammu city using ICMR antenatal scoring method.

MATERIAL AND METHODS

A prospective study was conducted to evaluate the role of risk factors in influencing pregnancy outcome among women living in urban slums. All pregnant women registered and attending Anganwadi Centres in different slums constituted the sampling frame for the present study. The procedure for selection of participants involved procurement of the records of total population of urban slums and list of AWCs from the Department of Social Welfare. Following procurement of requisite information, a stratified random sampling strategy was employed to select Anganwadi Centres. The urban slums and all Anganwadi centres functional in these slums were listed zone wise and from each of these eight zones, seven Anganwadi centres (AWCs) were selected using able of random numbers. Thus, a total of 56 AWCs were selected randomly which amounted to approximately 25% of the total functional AWCs in the study area. A total of 303 expectant mothers who were registered with these AWCs and were in their third trimester (>28 weeks of gestation) were enrolled after briefing them about the purpose of the study and after obtaining verbal consent from them. All enrolled women were followed till 7 days after delivery. The frequency of contacts with the enrolled women at AWCs depended on the gestational age at first contact. The mothers were contacted thrice if they were enrolled at 28 weeks, twice if they were enrolled at 32 weeks, and once if their expected date of delivery was within a week after date of registration.

After collecting preliminary socio-demographic information, the risk of adverse outcome in each woman was evaluated employing ICMR antenatal risk scoring system. A numerical
value was assigned to each factor as proposed by ICMR and the values were added to obtain a total risk score. Depending upon the cumulative score, a pregnant woman was grouped as having no risk (0 score), mild risk (1-3 score), moderate risk (4-6 score) or severe risk if the score was more than 7. Irrespective of the timing and frequency of antenatal contact, two postnatal contacts were made to assess the outcome of delivery, with the first visit made as soon as possible after delivery and second within subsequent 7 days. Birth weight of newborn was recorded during the first postnatal contact. The outcome was considered adverse if pregnancy ended in neonatal morbidity and mortality.

ICMR ANTENATAL RISK SCORING SYSTEM

The ICMR risk scoring system\(^{(4)}\) utilizes the concept of synergism of fetal risk and scores these females from 0 -10 score i.e.(annexure 1)

<table>
<thead>
<tr>
<th>Score</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no risk</td>
</tr>
<tr>
<td>1-3</td>
<td>mild risk</td>
</tr>
<tr>
<td>4-6</td>
<td>moderate risk</td>
</tr>
<tr>
<td>≥7</td>
<td>severe risk</td>
</tr>
</tbody>
</table>

STATISTICAL ANALYSIS: The analysis was performed with the help of computer software MS Excel & SPSS 12.0 for windows. Epi-info Version 6.0 was used to calculate risk estimates and corresponding 95% Confidence Intervals. Relationship of adverse pregnancy outcome was assessed by using Chi-square test/Fisher’s exact test and the strength of their association was computed by crude odd’s ratio.

RESULTS

Table I: Distribution of females according to ICMR antenatal scoring method

<table>
<thead>
<tr>
<th>Risk</th>
<th>Score</th>
<th>No Of Females</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>0</td>
<td>40</td>
<td>13.2</td>
</tr>
<tr>
<td>Mild Risk</td>
<td>1-3</td>
<td>174</td>
<td>57.4</td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>4-6</td>
<td>71</td>
<td>23.4</td>
</tr>
<tr>
<td>Severe Risk</td>
<td>≥7</td>
<td>18</td>
<td>6.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>303</td>
<td>100</td>
</tr>
</tbody>
</table>

57.4% women had a risk score 1-3 (mild risk), 23.4% women had risk score 4-6 (moderate risk) & 6% had risk score ≥7 (severe risk), where as remaining 13.2% had a score of 0 considered as (no risk) group.

Table II: Outcomes of pregnancies according to risk score
### Table III: Distribution of adverse outcome of pregnancies using ICMR scoring

<table>
<thead>
<tr>
<th>Adverse Outcome</th>
<th>Risk Score</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1-3</td>
</tr>
<tr>
<td>Nil</td>
<td>Nil</td>
<td>2</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Early Neonatal Death</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Neonatal Morbidity*</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>17</td>
</tr>
</tbody>
</table>

*Includes LBW, Septicaemia, Preterm, Pneumonia, Birth asphyxia

Neonatal morbidity was most common adverse pregnancy outcome (84.2%), followed by stillbirths (10%), and END (5.8%). 71.5% of still births occurred in mothers having severe risk and 28.5% occurred in mothers having moderate risk and in mothers who had mild risks none had stillbirths. All the early neonatal deaths occurred in mothers having severe to moderate risk and none had neonatal death in no or mild risk category.
DISCUSSION

In the present study out of the total pregnant females studied 70.6% were graded as having no risk or mild risk, 23.4% were in moderate risk group and only 6% of the mothers were in the category of severe risk according to ICMR antenatal scoring method. Similar finding were observed by Krishnan where 7.9% mothers were having risk score of ≥7. In another study conducted by Reddaiah and Kapoor, 9.6% of pregnant females had one or more risk factors. The risk of adverse outcome in the form of (stillbirths, early neonatal deaths, neonatal morbidities which include low birth weight, sepsicaemia, pneumonia, preterm births, birth asphyxia) increased with the increase in risk score. Similar results have also been reported by Samiya and Samina and Neeru et al.

The still birth rate in the present study was observed to be 23.1/1000 births. There was no still birth in no risk and mild risk category mothers, which increased to 71.5% in those who had severe risk (≥7) and the results were in accordance with other studies conducted by others Talsania and Lala and Fauveau et al. In a study conducted by Gupta et al, it was observed that still births were strongly associated with presence of maternal risk factors. However Datta and Dass, Kaushik et al and Misra et al also reported a higher still birth rate than observed in our study.

The overall early neonatal mortality rate in the present study was 13.6/1000 live births and no death was seen among neonates of mothers having no and mild risk where as all the neonatal deaths occurred in mothers who had moderate or severe risk. Similar findings
were observed by Gupta et al\textsuperscript{(8)} & Krishnen\textsuperscript{(5)} but Kaushik et al\textsuperscript{(11)} and Misra et al\textsuperscript{(12)} have reported higher early neonatal death rate in women with severe risk than in our study.

The perinatal mortality rate in the present study was 37.1/1000 live births. Sinha\textsuperscript{(13)} reported perinatal mortality of 37.54/1000 live births. The perinatal mortality rate was maximum in women with severe risk and minimum in women with no risk factor. A similar pattern of perinatal deaths with ICMR score was reported by Krishanan et al\textsuperscript{(5)} and Talsania.\textsuperscript{(9)}

Neonatal morbidity was 19.47\% in the present study, well compared with a study conducted by Lala and Talsania.\textsuperscript{(4)} 61\% of neonatal morbidity was seen among women with moderate and severe risk in a study conducted by Gupta et al.\textsuperscript{(8)} However, Das et al\textsuperscript{(14)} had reported early neonatal morbidity of 66.85\% in their study.

CONCLUSION

It can be concluded from this study that by categorizing mothers into risk groups using ICMR antenatal scoring system during antenatal check up, all pregnant mothers can be placed in different groups and accordingly, further care and referral services can be imparted to them which will help to reduce perinatal mortality and morbidity.

REFERENCES


