COMMON RISK FACTORS IN PATIENTS WITH INTRAUTERINE FETAL DEATH

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ABSTRACT

Objective: To find out common risk factors in patients with intra-uterine fetal death.

Methodology: This descriptive cross sectional study was carried out on 155 patients. Study was conducted at Department of Gynecology Lady Reading Hospital Peshawar from 30th August 2010 to 28th February 2011. Intra-uterine fetal death (IUFD) at or after 28 weeks of gestation was diagnosed on ultrasound. Complete obstetrical history including last menstrual period and history of loss of fetal movements was taken. In GPE blood pressure was recorded and other relevant examination were performed. In vaginal examination any bleeding was noted and umbilical cord was examined and cord prolapse recorded if present. Full blood count, fasting blood glucose level, urine sample collected in 24 hours and all other relevant investigations were performed.

Results: Mean age of the patients was 37.00±2.46 years. 62 (40%) patients were primigravida and 93 (60%) were multigravida. Placental abruption was found in 52%, anemia in 8%, pre-eclampsia in 30%, eclampsia in 54%, diabetes mellitus in 18% and cord prolapse in 58% of the patients.

Conclusion: Placental abruption, eclampsia, and prolapsed cord were found to be important factors in IUFD.

Key Words: Risk factors, Intra-uterine fetal death

INTRODUCTION

Worldwide 3.3 million stillbirths are reported; 97% occurring in developing countries every year. Only 4% of cases are registered in developing countries where under reporting is common. It is likely that an additional 1-2 million of unrecorded stillbirths occur in these countries. In developed countries including U.S., rates of 5 per 1000 or less are seen. Largest numerical stillbirth burden is recorded in South Asia with rates ranging from 25 to 40 per 1000 births. Pakistani has stillbirth rate of 22 per 1000 births as reported by WHO[1].

Risk factors for intra-uterine fetal death (IUFD) include general and specific categories. General includes socio-demographic data such as place of living, occupation and education etc. Specific factors include fetal, maternal, cord and placental factors. IUFD risk increases by 4 times with pregnancy at an early age i.e. age of 16 years and less[2].

In developing countries common risk factors for fetal death include antepartum hemorrhage, misman-agement of labor, congenital anomalies, pregnancy induced hypertension, prolonged rupture of membranes, and medical problems like cardiac disease, diabetes mellitus, etc[3].

In the third trimester most common cause of fetal death is umbilical cord complications. Unfortunately these complications are referred as unpreventable and unpredictable. On the other hand insertion anomalies like velamentous insertions, nuchal umbilical cords and knots are relatively frequent findings and not necessarily associated with fetal death[4]. Unexplained antepartum death is the most common cause of stillbirth near term, and these stillbirths are more likely to have had an autopsy[5].

Various studies have been done nationally and internationally showing various results regarding the frequency of common risk factors for IUFD like 9.3% for anemia[6], 51% for thrombophilia[7], 28.76% for pre eclamsia[8], 55% for eclampsia[9], 16.7% for diabetes mellitus[10], and 55% for cord prolapse[11].

In Pakistan due to poor antenatal care and lack of knowledge among the women, many intrauterine fetal deaths remain unnoticed even if the cause is preventable by simple measures. Our local statistics are lacking for risk factors of IUFD. Knowledge about risk factors of IUFD can be included in teaching sessions of undergraduates and other health personnel like lady health visitors (LHVs) and midwives.

Although understanding the pathogenesis of IUFD is not difficult however identifying those truly at risk is not so easy. In our study we attempted to identify risk factors associated with IUFD.

Based upon results we will suggest certain recommendations for example good antenatal care, blood pressure control, diabetes control to government, non-government institutions, gynae/obstetric institutions that may decrease IUFDs. This study may prove helpful to the ministry of health in implicating new health policies and this is the purpose of putting an effort to determine the frequency of risk factors for IUFD.

METHODOLOGY

The study was carried out at Gynecology and Obstetrics C Unit, Lady Reading Hospital, Peshawar. Duration of study was 6 months from 30th August 2010 to 28th February 2011. Sample size was 155 using 9.3 % proportion of anemia as a risk factor, 95% confidence level and 4.6 % margin of error using WHO software for sample size determination.

All patients of 15 to 45 years of age with IUFD having singleton pregnancy were included in the study. Patients with history of blunt trauma to abdomen, with congenital anomalies of fetus diagnosed on ultrasound and with multiple pregnancy diagnosed on ultrasound were excluded from the study. IUFD at or after 28 weeks of gestation was diagnosed on ultrasound. Informed written consent was taken.

Complete obstetrical history including previous obstetrical history of last menstrual period and history of loss of fetal movements was taken, then the general physical examination (GPE), abdominal and vaginal examinations were performed. In GPE we checked blood pressure and looked for edema. On vaginal examination we checked any bleeding and felt for umbilical cord. All relevant investigations like full blood count for anemia, fasting blood glucose level for diabetes and urine sample collected in 24 hours for diagnosis of proteinuria were sent to the laboratory; other tests if required were also performed.

All information was recorded in a proforma. Confounding variables and bias was controlled by strictly following the exclusion criteria. The data was analyzed using SPSS version 10.0. Statistics like mean and standard deviation were calculated for age, gravidity and parity. Frequency and percentage were calculated for qualitative data like placental abruption, pre-eclampsia, eclampsia, diabetes, and cord prolapse. Risk factors was stratified among the age, parity and gravidity so that to see the effect modifiers.

The intrauterine fetal death is the term for a stillbirth after the 28th gestational week[11]. Common risk factors are the factors which in majority of cases are responsible for intrauterine fetal death. Gravida means the number of times the lady has been pregnant, irrespective of whether these pregnancies were carried to term. Parity means the number of >28-week births including viable and non-viable births; i.e., stillbirths. Primigravida indicates a woman who becomes pregnant for first time while multigravida is the one who is pregnant for more than one time. Similarly primipara is a woman who has delivered baby of more than 28 weeks for first time while multipara is the one who delivered baby more than 28 weeks for more than one time.

RESULTS

Age distribution among 155 patients was as; n=34(22%) patients were in the age group 15-25 years and n=68(44%) patients were in the age group 26-35 years and n=53(34%) patients were in the age group 36-45 years. Mean age was found to be 37±2.46 years.

Status of gravida among 155 patients was analyzed as; n=62(40%) patients were primigravida while n=93 (60%) patients were multigravida. Status of parity among 93 multigravid patients was analyzed as; n=31 (20%) patients were primipara and n=62(40%) patients were multipara.

Risk factors for intra-uterine fetal death among 155 patients are shown in table 1.

Age wise distribution of risk factors is shown in table 2. Gravidity wise distribution of risk factors is shown in table 3. Gravidity wise distribution of risk factors is shown in table 4.

DISCUSSION

In our study 44% patients were in age group 26-35 years, followed by 34% patients in the age group 36-45 years. Similar results were found in study done by Fretts et al in which 42% were in age group 26-35 years followed by 38% patients in age group 36-45 years[19]. Fetal outcome worsens with advancing age[19]. If other risk factors are present then it is difficult to make recommendations on the basis of only age, however ultrasound study for fetal growth might help in this respect.

In this study we tried to calculate the weight of fetuses after birth that died in utero. Calculating fetal birth

weight is very difficult because of the weight loss that can occur postmortem. Hence the distribution of birth weights of babies with stillbirth would artificially be skewed and as a result would falsely increase the odd ratio of growth restriction. In our department however most of the stillbirth babies were delivered soon after the diagnosis of fetal death. According to one study 80% of all stillbirth babies deliver within one week after intrauterine death[19]. It leads to difference between fetal weight at time of fetal death in utero and weight at the time of delivery[20]. Almost half (48.4%) of the stillbirth babies were in the <10th percentile of specific weight for gestational age and more than a third (37.8%) were below the 3rd percentile. It is clear that arrested growth was a factor in majority of these cases.

Majority of IUGR fetuses were not clinically diagnosed during antenatal period and this is the major diagnostic problem in such cases where common risk factors were not present. One study conducted in a population of women showed that only 17% of fetuses in <10th percentile group were identified antenatally[21].

Another study conducted on population of women who had no complaint at all, showed that 14% of IUFDs were detected on a routine antenatal clinic when fetal heart rate was not audible[20].

In our study the incidence of intrauterine fetal death was found more in multigravida (60% patients) as compared to primigravida (40%). Similar results were found in study done by Kean et al in which ntrauterine fetal death was found more in multigravid (70% patients) as compared to primigravid (30%)[22].

Our results shows that incidence of placental abruption was found in 52% of patients ,anemia was found in 8% of patients, pre-eclapmsia was found in 30% of pa-

Table 1: Risk factors (n=155)

Risk factors	Frequency	Percentage
Placental Abruption	81	52%
Anemia	12	8%
Pre-eclampsia	47	30%
Eclampsia	82	54%
Diabetes Mellitus	28	18%
Cord Prolapse	90	58%

Table 2: Age wise distribution of risk factors (n=155)

Risk factors	15-25 yrs	26-35 yrs	36-45 yrs	total
Placental Abruption	17	41	23	81
Anemia	4	5	3	12
Pre-eclampsia	10	25	20	47
Eclampsia	14	39	29	82
Diabetes Mellitus	3	15	10	28
Cord Prolapse	18	42	30	90

Table 3: Gravidity wise distribution of risk factors (n=155)

Risk factors	Primigravida	Multigravida	Total
Placental Abruption	29	52	81
Anemia	4	8	12
Pre-eclampsia	16	31	47
Eclampsia	30	52	82
Diabetes Mellitus	10	18	28
Cord Prolapse	32	58	90

Table 4: Parity wise distribution of risk factors (n=93)

Risk factors	Primipara	Multipara	Total
Placental Abruption	19	33	52
Anemia	3	5	8
Pre-eclampsia	11	20	31
Eclampsia	17	35	52
Diabetes Mellitus	7	11	18
Cord Prolapse	23	35	58

tients, eclampsia was found in 54% of patients, diabetes mellitus was found in 18% of patients and cord prolapse in 58% of patients.

Similar findings were observed in study done by Hoffmann et al[23] in which placental abruption was found in 50% patients, anemia was found in 10% patients, pre eclampsia was found in 29% patients, eclampsia was found in 51 % patients, diabetes mellitus was found in 16% and cord prolapse was found in 54% patients. Similar results were also cited by Raymond et al[24] in which placental abruption was found in 54% patients, anemia in 12%, pre-eclapmsia in 32%, eclampsia in 56%, diabetes mellitus in 19% and cord prolapse was found in 60% of patients.

In other studies IUGR, 3rd trimester hemorrhage, postdate delivery (more than 280 days), and multiple pregnancy were evaluated and found that IUGR was significantly associated with IUFD. Cenantigus[14] in his study pointed out that very low birth weight i.e. less than 1500gm is significantly associated with IUFD. They showed that number of death in this group was significantly higher than that of the normal weight babies.

Divon et al[18] also showed in his study that arrested uterine growth can 10 times increases fetal death at full term. The risk of IUFD was found to increase 6.4 times if hemorrhage occurs during 3rd trimester of pregnancy. One of the most important risk factor for IUFD is placental abruption which is responsible for 16% cases in comparison to 4.7% cases in the control group. Surkan[13] also correlated the placenta previa and placental abruption to the IUFD.

Dikenson[17] in his study postulated that twin pregnancies are associated with an increase rate of IUFD. Paulli[16] added to this that monozygotic twins have an increase rate of demise.

Cord prolapse is also one of the important risk factor for IUFD. In another study it was shown that cord prolapse is responsible for 27 cases of IUFD out of total 158 cases[12]. However, Prabolus[15] in his study on 65 cases showed no fetal death due to cord prolapse.

However this might be due to good emergency management because in these cases duration of manage-ment for complete cord prolapse was about 20 minutes and for occult cord prolapse was 25 minutes. Also the reason for better outcome was that almost all patients have received prenatal care during their pregnancies. Our setup is however overpopulated with an estimated 1700 cases are handled single handedly by one special-ist and 5 midwives every year.

Our result shows that frequency of placental abruption, anemia, pre-eclampsia, eclampsia, diabetes, cord prolapse was found mostly in age range 26-35years and secondly in age range 36-45 years. Some cases were also found in age range 15-25 years because maximum patients in this age range had come from rural areas where there is lack of proper antenatal care. Similar results were shown in the studies done by Raymond et al and Smith[24,25].

CONCLUSION

Placental abruption, eclampsia, and prolapsed cord were found to be important factors in IUFD. Reduced fetal activity should be investigated thoroughly; with formal measurement of fetal growth as part of assessment.

RECOMMENDATIONS

Pregnancies associated with arrested foetal growth and reduce activity warrant thorough assessment of fetal well-being and should not be overlooked. Such cases need ultrasound assessment of foetal growth and evaluation of liquor volume.Expert counseling is recommended to the patients and their relatives regarding post mortem examination to collect additional data regarding the possible cause of IUFD which will help management of such cases in future.

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