ORIGINAL ARTICLE

An Analytical Study of Intrauterine Fetal Demise with Risk Factors and Prevention Strategies in a tertiary care hospital of Lahore

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ABSTRACT

Aim: To analyze the maternal and obstetrical risk factors associated with intrauterine fetal demise and to outline the prevention strategies.
Study design: cross sectional study
Place and duration of study: A period of one year from 1st June 2016 to 31st May 2017 in the Department of Obstetrics and Gynecology, Avicenna Medical college, Lahore.
Methodology: All the patients with intrauterine fetal demise were selected from the total number of patients presenting to the department of obstetrics and gynecology through Outpatient department or emergency room. Written informed consent was taken from the patients for the use of personal data for study purpose. The demographic variables, maternal and obstetric risk factors were calculated. The fetal condition at birth was assessed by baby weight, congenital abnormalities, placental weight, number of vessels in cord, placental abnormalities like calcification/ abruption, intrauterine death fresh or old and examination for morphological abnormalities. After reviewing the results, prevention strategies were outlined.
Results: A total of 52 patients with intra uterine fetal demise were reported among 1070 deliveries conducted during the study period. The incidence rate of stillbirth was 48.59/1000 live births. 85% of the patients were un booked. The other observations were 46% were anemic, 42% were hypertensive with 3.8% had eclampsia.
Conclusion: The incidence of stillbirth in our population is higher than that reported from developed countries. This is associated with anemia, hypertension, placental abruption, illiteracy, macrosomia, diabetes, high BMI, polyhydramnios and ruptured membranes. Lack of antenatal care and low socioeconomic status are the other reasons for high stillbirth rate in urban rural belt of Lahore.
Key words: anemia, antenatal care, hypertension, intrauterine fetal demise, stillbirth.

INTRODUCTION

Stillbirth is defined as a baby born with no signs of life at or after 28 weeks' gestation. It includes both antepartum and intrapartum fetal demise. While intrauterine fetal demise is the death of the fetus at or after 28 weeks' gestation and before birth. In our study, we tried to find out the antepartum causes of intrauterine fetal demise in our region. Stillbirth is an obstetric death accounting for approximately half of perinatal death. Stillbirth is an event which has always challenged the obstetricians[1]. It places a huge economic health burden and poses a physical and psychological problem to the families. Most of the stillbirths occur in low and middle income countries. In 2009, 76.2% of stillbirths occurred in South Asia and Sub Saharan Africa, the highest reported rates of stillbirth in Nigeria (41.9/1000 births) and Pakistan (46.1/1000)[2]. The causes of stillbirth differ between low income and high income settings and even within the countries; the stillbirth rate is higher in rural Northern Nigeria than urban teaching hospitals in southern Nigeria[3]. In low income settings, up to 50% of stillbirths occur intrapartum and relate to absence of skilled birth attendants and low access to cesarean section, factors which are particularly important in rural areas[3]. Reductions in stillbirth rates in developed countries are primarily due to the reductions that occurred in intrapartum stillbirth rates[4]. Increased access to obstetrics services including intrapartum fetal monitoring and to cesarean sections appear to be associated with these reductions in stillbirth rates[5,6].

The mode of antenatal care has changed in past 50 years. The mode of antepartum and intrapartum surveillance for fetal well-being has advanced in last few decades. There are many maternal, fetal conditions and diseases that are responsible for poor obstetrical outcomes. In developing countries, the causes of stillbirth include maternal infections, fetal asphyxia, trauma, congenital abnormalities, antepartum hemorrhage, smoking, drug abuse, maternal medical disorders like anemia, pre-eclampsia/eclampsia, diabetes, antiphospholipid syndrome, thyroid and renal disorders. Majority of the patients are illiterate, belong to low income class and lack access to antenatal care.

Prevention of stillbirth requires measures to improve the health and wellbeing of women before and during pregnancy. Pre conception care is also recommended for all women especially those with medical disorders, so that maternal health can be optimized prior to pregnancy. Appropriate antenatal care, assessment of risks at each visit, correction of anemia, timed delivery after 41 weeks' gestation are the strategies to reduce the incidence of stillbirth.

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METHODOLOGY

During the study period of one year, 52 patients with intra uterine fetal demise were selected from the total number of patients presenting to the department of obstetrics and gynecology through Outpatient department or emergency room. Informed consent was taken from the patients for the use of personal data for study purpose. The demographic variables, maternal and obstetric risk factors were calculated. The gestational age and the fetal death was confirmed by the ultrasonography. The fetal condition at birth was assessed by baby weight, congenital abnormalities, placental weight, number of vessels in cord, placental abnormalities like calcification/ abruption and examination for morphological abnormalities.

Inclusion criteria: All the patients presenting with intra uterine fetal demise at/after 28 weeks' gestation or babies weighing 1000 gm or more.

Exclusion criteria: It includes intra uterine fetal demise at less than 28 weeks' gestation, fetuses weighing below 1000 gm and multiple gestation.

RESULTS

During the study of one-year period, 52 patients with intrauterine fetal demise were selected who presented to outpatient department of Avicenna hospital.

Age: The mean age of patient was 26 years, range (26-30 years) 2 patient were aged 18-20 years,16 patients were 21-25 years, 30 patients were aged 26-30 years, 4 patients were 31 years and above as shown in the table.

Parity: 4 patients (7.69%) were Para 0 (all previous abortions), 18 patients (34.6%) were primigravida, 16 patients (30.7%) were Para 1-3, 14 patients (26.9%) were Para 4 and above.

Gestational age: 20 patients (38.4%) were between 28-32 weeks, 16 patients (30.7%) were between 33-37 weeks, 12 patients (23%) were between 37- 40 weeks' gestation, 4 patients (7.6%) were above 40 weeks' gestation.

Booking: 44 patients (85%) were un booked. 8 patients (15%) were booked.

Education: 36 patients were illiterate while 16 patients were educated. Among educated patients,6 patients (11%) were matriculate, 6 patients (11%) were middle pass,2 patients (3.8%) were intermediate pass and 2 patients (3.8%) were post graduate.

Socioeconomic status: The majority of the patients belonged to very low socioeconomic status.42 patients (80.7%) belonged to a very low socioeconomic class earning 5000-10,000, while 10 patients (19.3%) had an income of between 10,000 to 25,000/month.

Risk factors: 24 patients (46%) were anemic, 22 patients (42%) were hypertensive with 2 patients (3.8%) had eclampsia. 22 patients (42.3%) were overweight with BMI between 25-29.9. 16 patients (30.7%) presented with placental abruption. 14 patients (26.9%) presented with macrosomia while 2 patients (3.8%) had fetal growth restriction. 12 patients (23%) presented with antepartum hemorrhage.10 patients (19.23%) presented with polyhydramnios while only 2 patients (3.8%) had oligohydramnios. 10 patients (19.2%) presented with premature rupture of membranes. 8 patients (15.38%) had diabetes mellitus. 2 patients (3.8%) each presented with postdate pregnancy and congenital abnormality. 6 patients (23%) presented with chorio amnionitis. There were no patients with known history of smoking or substance abuse.

Fetal outcome: 36 patients (69.2%) had fresh intrauterine fetal death while 16 patients (30.8%) delivered old macerated babies. 14 babies (26.9%) had birth weight appropriate for gestational age, 11 babies (21.15%) were small for gestational age and 2 babies (3.84%) were large for gestational age.

Table 1: distribution according to booking status:

Booking status	**n**	**%age**
Un Booked	44	85
Booked	8	15

Table 2: Distribution according to education:

Education	**n**	**%age**
Un Educated	36	70
Educated	16	30

Table 3: Distribution according to maternal age:

Maternal age(years)	**n**	**%age**
18-20	2	3.8
21-25	16	30.7
26-30	30	57.7
31-above	4	7.7

Table 4: Distribution according to gravidity:

Gravidity	**n**	**%age**
P0+1	4	7.7
Primigravida	18	34.3
G2-3	16	31
G4 and above	14	27

Table 5: Distribution of gestational age:

Gestational age	**n**	**%age**
28-32 week	20	38.4
33-37 weeks	16	30.7
37-40 weeks	12	23.2
>40 weeks	4	7.7

Table 6: distribution according to risk factors:

Risk factors	**n**	**%age**
Anemia	24	46
Hypertension/eclampsia	22/2	42/3.8
High BMI	22	42.3
Placental abruption	16	30.7
Macrosomia	14	26.9
Antepartum hemorrhage	12	23
Chorioamnionitis	6	23
Polyhydramnios	10	19.23
Premature rupture of membranes	10	19.2
Diabetes mellitus	8	15.38
Postdate pregnancy	2	3.8
Congenital abnormality	2	3.8
Fetal growth restriction	2	3.8
Oligohydramnios	2	3.8
Smoking/ drug abuse	0	0

Table 7: Fetal birth weight according to gestational age

Birth weight	**n**	**%age**
Appropriate for gestational age	14	26.9
Small for gestational age	11	21.15
large for gestational age	2	3.84

DISCUSSION

This study consists of 52 stillbirths amongst 1070 total births. Thus the incidence of stillbirth was 48.59/1000 births. The incidence of stillbirth in a study by Susmita sharma et al. was 36/1000 births(8).This is lower than that our study. Similarly the western countries have much lower incidence of stillbirth ranging from 4.7% to 12% (8). The reason for higher incidence in our center is due to being a tertiary care referral hospital and all the major complicated cases from the nearby periphery are referred here. The other cause for this high incidence is that majority of the patients (80%) had no antenatal care, 70% were illiterate and 80.7% belonged to a very low income group. The nutritional deficiency and anemia (46%) was the leading risk factor for stillbirth which is comparable to a study done in India, they had 74.4% of patients with anemia[8].

Hypertension (42%) was the second common risk factor for stillbirth in our center which is comparable to a study done in Jinnah Postgraduate Medical center, Karachi which accounted for 24% of the stillbirths due to hypertension[9]. India has much lower incidence of stillbirth(14.4%)[8]. We had higher rates of stillbirth in primigravida, gestational age between 28-32 weeks and maternal age between 26-30 years. The western studies show that increased risk is present in women over 35 years of age[10].

In western world, 34% of stillbirths were after 37 weeks gestation when timely delivery could have prevented the stillbirth[11]. A substantial number of stillbirths were due to diabetes, placental abruption and macrosomia in our study. This reflects poor antenatal care, lack of skilled attendant at birth, poverty and illiteracy.

Prevention strategies: Stillbirth remains the most common adverse pregnancy outcome, yet is among least studied. Specific strategies have been evaluated to reduce stillbirth in developing countries. Improved access to quality essential emergency services decreases intrapartum stillbirth rates. Egypt has shown declines in stillbirth rates linked to maternal mortality, primarily attributed to increased deliveries in referral facilities as well as improved quality of facility based care[12].

A strategy of training of community birth attendants to provide basic care, recognize the need for referral and to stabilize high risk women prior to referral has been proposed as an interim solution[13]. In Pakistan, 80% of deliveries are conducted by traditional birth attendants(TBAs). stillbirth were significantly reduced(5.0 Vs7.1%) by training TBAs on antepartum, intrapartum and postpartum care and referral guidelines for emergency obstetric care[1].

Bhutta et al found that Strategies like improvement in maternal nutritional status, have been evaluated to reduce stillbirth in developing countries.(1). Few nutritional supplementation trials have specifically evaluated stillbirths in a very low resource settings have significantly improved pregnancy outcomes[1].

Preconception care is recommended for all women, particularly those with pre existing medical disorders such as diabetes, so that the maternal health can be optimized prior to pregnancy. Antenatal care needs to detect women at increased risk of stillbirth and optimize their management. All women should have a dating scan to assess fetal growth and to prevent prolong pregnancy.

As fetal growth restriction is the most common risk factor in high income countries as well as low income countries. Risk factors for fetal growth restriction should be reviewed at the beginning of pregnancy and have serial scans to assess fetal growth and screen for placental insufficiency(15). In women with high risk pregnancies, umbilical artery Doppler reduces perinatal mortality[16].

The timing of delivery should also be optimized to reduce perinatal mortality. Data suggests that offering induction of labor at 39-40 weeks in women with advanced maternal age > 40 years would reduce the stillbirth rate in this group[17].

Prevention of stillbirth requires a good understanding of relevant causes of stillbirth which are amenable to interventions. Perinatal audit needs to be completed locally and nationally and audit cycles completed to evaluate improvement in care.

CONCLUSION

Stillbirth remains one of the most distressing and adverse pregnancy outcomes and yet among the least studied. The incidence of stillbirth in our country is very high as compared to western countries. This is associated with anemia, hypertension, antepartum hemorrhage, low socio economic status and infections. Lack of proper antenatal care contributed to a high rate of intrauterine fetal demise. Proper screening and antenatal care can play an important role in prevention of stillbirth

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