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Original Research Article

A study of high-risk factors in ante-natal women at a tertiary care centre

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ABSTRACT

Background: High-risk pregnancy refers to any condition in pregnancy that increases risk for morbidity or mortality in mother, fetus and neonate. Globally, nearly 5,29,000 women die due to pregnancy related complications. In India, 20-30% of the pregnant patients contribute to high risk group. This study was conducted to determine different high-risk factors prevalent in antenatal women in Haryana. Objective of this study was to find out prevalence of different high-risk factors in antenatal women.
Methods: Data of all antenatal high-risk patients attending OPD during one year was taken from hospital record registers. Maternal characteristics such as age, gravida/parity, gestational age, and gestational age at the time of first visit were noted. High risk factors identified were noted.
Results: The records of total 10073 antenatal women were analyzed, 1283 were included in the high-risk group. Most prevalent high-risk factors found were previous cesarean section (31.04%), anaemia (31.02%), malpresentation (12.93%) and thyroid disorders (13.09%).
Conclusions: Antenatal surveillance for the high-risk factors complicating pregnancy may prevent or treat most of the complications. Authors should develop strategies for early screening of high-risk pregnancy cases to prevent maternal and perinatal mortality and to improve the maternal and perinatal outcome.

Keywords: Anemia, High risk pregnancy, Prevalence, Previous caesarean section

INTRODUCTION

High risk pregnancy is the one in which mother or fetus or both are at high risk of morbidity and mortality by factors which may develop during antenatal period or even present before the conception. Although, the percentage of pregnancies which can be classified as high risk are only 10-30% of the antenatal women, but these high-risk pregnant women accounts for 70-80% of perinatal mortality and morbidity.[1]

According to World Health Organization (WHO), 800 women per day die due to pregnancy related complications, which may either be present during antenatal period or complications during childbirth. The most common causes of maternal mortality are severe hemorrhage, hypertension-related disorders of pregnancy such as preeclampsia and eclampsia, sepsis, unsafe abortions and medical complications such as cardiac conditions, HIV/AIDS, or diabetes complicating or complicated by pregnancy.[2] According to NITI AOYOG, MMR (maternal mortality rate) of India has declined from 167 (2011-2013) to 130 (2014-2016). Among southern states, MMR has declined from 93 to 77 (in Kerala, it declined from 61 to 46) but in Haryana it is still 101.[3]

To decrease maternal mortality to minimum, authors should screen all our antenatal women since first trimester for identification of all high-risk factors as early as possible. After identification, timely management of these high-risk patients is essential to decrease the

maternal mortality and maternal morbidity. Early identification and timely management of the high-risk pregnancies can also have significant effect on decreasing the perinatal mortality and morbidity.

This study was designed as an attempt to find out the profile of high-risk pregnancy among antenatal women at tertiary care center in Haryana.

METHODS

A retrospective study was done on all antenatal high-risk patients who visited outpatient department of obstetrics and gynecology at Pt. B.D. Sharma PGIMS, Rohtak, Haryana during one year (1st January 2017 to 31st December 2017). Criteria for high risk pregnancy were Age >35 years, height <145 cm, parity beyond 4, bad obstetric history such as two or more previous abortions, previous still birth, previous pre-term, previous history of congenitally malformed baby, previous caesarean section, hypertension in pregnancy, and history of chronic medical disorders like severe anemia, diabetes and thyroid disorders.[4]

Inclusion criteria

All the women suffering from high-risk pregnancy were included in the study.

Exclusion criteria

The women with uneventful pregnancy were excluded from the study.

Data of all antenatal high-risk patients during one year (1st January 2017 to 31st December 2017) was taken from hospital record registers. Maternal characteristics such as age, gravida/parity, gestational age, and gestational age at the time of first visit were noted. High risk factors identified were noted and categorized into three categories: first related to pregnancy (previous LSCS, recurrent pregnancy loss, antepartum hemorrhage, multiple pregnancy, intrauterine death, malpresentations, history of ectopic pregnancy and bad obstetric history), second category related to medical diseases which affects pregnancy (anemia, pregnancy induced hypertension, thyroid disease, heart disease, diabetes, jaundice.) and third category related to infections (urinary tract infections, HIV, HBsAg, HCV, HEV, VDRL,TORCH). Authors also tried to find out effect of age on various risk factors.

Statistical analysis

The results obtained were compiled and analyzed using statistical software (SPSS version 20.0). Categorical data was presented as frequency (number and percentage). Chi square test was used to find out the effect of age on various risk factors in pregnancy.

RESULTS

Total 10,073 women were enrolled in the present study. Out of these, 1283 women were found to be high risk thus making the prevalence of 12.73% at PGIMS, Rohtak. Table 1 show maternal characteristics and obstetric index.

Table 1: Maternal characteristics and obstetric index of study participants.

Sociodemographic features and obstetric index	Frequency (n=1283)	Percentage
Gravida		
Primigravida	218	16.99%
Gravida 2	473	36.86%
Gravida 3	361	28.13%
Gravida 4 or >	231	18.00%
Age wise distribution (years)		
<20	64	4.98%
21-25	644	50.19%
26-30	436	33.98%
30-34	111	8.60%
>35	28	2.18%
Period of gestation		
0-12 weeks	295	22.99%
13-28 weeks	591	46.06%
29-36 weeks	264	20.57%
37 or more	133	10.32%

Table 2: High-risk factors-related to pregnancy.

High risk patients	Number of patients	Percentage
Previous LSCS	398	31.02%
RPL	159	12.39%
APH	33	2.5%
Multiple pregnancy	29	2.26%
IUD	20	1.5%
Malpresentation	166	12.93%
H/O ectopic	101	7.8%
BOH	118	9.19%

In the present study, 16.99% were primigravida, 473 (36.83%) were gravida 2,361 (28.31%) were gravida 3,231 (18.00%) were gravida 4 or more. Most of the women, 1080 (84.17%) were in the age group between 21-30 years of age, 111 (8.60%) were between 30-34 years and 28 (2.18%) of women were 35 years or more. In present study, only 295 (22.99%) women were reported in first trimester and most of the women (46.06%) had their first visit in second trimester. One third 397 (31%) of the women in our study reported for the first time in their third trimester only. Table 2 show high risk factors related to pregnancy. In the present study, previous history of caesarean section was found in 31.04% of high-risk pregnant women. There were

12.39% women who had recurrent pregnancy loss (with two or more abortions) and 7.87% women had history of ectopic pregnancy. Bad obstetric history was present in 9.19% and 1.55% patients had history of intrauterine death in their previous pregnancy.

Table 3: High-risk factors related to medical diseases and infections.

High risk factors	No. of patients (n=1283)	Percentage
Anaemia	390	31.09%
Rh negative	196	15.27%
Thyroid d's	168	13.09%
PIH	106	8.26%
Heart d's	21	1.63%
Diabetes	37	2.8%
Jaundice	16	1.4%
Infections		
UTI	92	7.17%
HIV	45	3.5%
HBSAG	21	1.63%
HCV	7	0.04%
HEV	23	1.73%
VDRL	8	0.61%
Torch	27	2.1%

In the present pregnancy, mal-presentations were found in 12.93%, 2.57% women presented with Antepartum hemorrhage and 2.26% had multiple pregnancies. The frequency of medical disorders in this study is represented in Table 3. Anaemia (31.02%) was the most frequent medical disorder found in this high-risk woman. Other medical disorders identified in our study were hypertensive disorder of pregnancy (8.26%), Rh negative pregnancy (12.39%), thyroid disorder (13.09%), diabetes (2.8%), heart disease (1.63%) and jaundice (1.4%). Most common infections affecting antenatal women in our study was urinary tract infections (7.17%) and the other infectious causes are tabulated in Table 3.Table 4 shows effect of age on various risk factors. The frequency of anaemia in age group <20-year age was 9.35%, 19.72% between 21-25 years of age, increased to 41.05% antenatal women between 26-30 years, further increased to 70.25% when women age reached 30 year or older. P value was 0.001 and that is highly significant. This can be related to multi-parity with increase in age. There is no significant relation found between age and Rh-negative pregnancies. Incidence of hypothyroid and bad obstetric history is also increasing with age in present study. There were 28.57% of women in age group of 31-35 years who were suffering from hypothyroidism and 7.80% had hypothyroidism in age group of less than 20 years. The p-value was found to be 0.001. Risk of previous LSCS has also increased with age in present study, 18.75% women had history of previous LSCS with age less than 20 year of age and it increased to 59.45% in women aged 30 years or more and the difference was found to be highly significant (p<0.001).

Table 4: Effect of age on various high-risk factors.

AGE	<20	21-25	26-30	31-35	>35	
No. of patients	n=64	N=644	n=436	n=111	n=28	X^2 value, p-value
Anaemia	6 (9.37%)	127 (19.72%)	179 (41.05%)	78 (70.90%)	9 (32.14%)	X^2=152.67 p=<0.001
Rh negative	26 (40.06%)	83 (12.88%)	71 (16.28%)	16 (14.41%)		
Previous CS	12 (18.75%)	178 (27.63%)	129 (29.58%)	66 (59.45%)	13 (47.42%)	X^2=54.64, p=0.001
Abortion	3 (4.68%)	69 (10.71%)	60 (13.76%)	21 (18.91%)	6 (21.42%)	X^2=72.20, p=0.015
Hypothyroid	5 (7.81%)	61 (9.47%)	73 (16.74%)	21 (18.91%)	8 (28.57%)	X^2=23.29, p<0.001
BOH		22 (3.41%)	51 (11.69%)	42 (37.83%)	3 (10.71%)	

DISCUSSION

Recognition and diagnosis of all high-risk factors should be the first step to improve morbidity and prevent mortality of pregnant women. Out of 10,073 women enrolled in study, 1283 women were found to be high risk thus making the prevalence of 12.73% at our tertiary care center which is situated in Haryana. A study conducted by Mufti et al found 15% prevalence of high-risk pregnancy in Kashmir.[5] Bharti et al found 31.4% of prevalence of high-risk pregnancy at Chiri block (Rohtak).[6] In rural South India, prevalence of high-risk pregnancy was found to be 18.3%.[7]

In the present study, 592 (46.31%) of women were gravida 3 or more and most of the women (84.17%) were in the age group between 21-30 years of age. This can be

explained on the basis of early age of marriage in Indian women. A rural hospital based study conducted by Bharti et al in 2011-12 in rural Haryana found that 85.3% antenatal women were in the age group of 21-30 years, only 3.4% antenatal women were between 30-34 years and 0.8% women were more than 35 years of age.[6] Sachdeva et al found that 17.2% of study women were of more than 30 year of age.[8] In Iran, it was found that 4.4% of the referred high risk women were less than 18 years, 88.2% were between 18-35 years of age and only 7.4% were more than 35 years of age.[9] In present study, only 22.99% women reported in first trimester and one third of the women in this study reported for the first time in their third trimester only. This represents the inattentive and negligent behavior of the antenatal women of our society. The awareness regarding antenatal visits in first trimester of pregnancy was very low in this study group. Authors have to work on early registration of pregnancy in hospitals and authors can also include the multi-purpose health workers to motivate the women in their localities/villages for early registration in ante-natal period.

In the present study, most common emerging high-risk factor was previous caesarean section (31.04%). The incidence of previous caesarean section was found to be 33.3% in a study by Chauhan PA et al.[10] Singh S et al in their descriptive observational study in Haryana found that 28% mothers delivered by caesarean section.[11] Patients with scarred uterus exposes to various complications and risks in subsequent pregnancy like repeat caesarean section, uterine rupture, placenta accrete or increta, postpartum hemorrhage, hysterectomy and intra-abdominal adhesions with risk of these morbidities progressively increasing as number of previous caesarean increases.[12] The women who had recurrent pregnancy loss (with two or more abortions) was 12.39% and 7.87% women had history of ectopic pregnancy. Bad obstetric history was present in 9.19% and 1.55% patients had history of intrauterine death in their previous pregnancy.

Anaemia (31.02%) was the most frequent medical disorder found in these high-risk women followed by thyroid disorder (13.09%) and Rh-negative pregnancy (12.39%). Bharti et al in her study found that 27.4% patients had RPL, 11.6% had preterm birth, 22% had hypertension, and 14.7% had chronic medical diseases.[6] Jaideep et al conducted a similar study in rural Karnataka and found that prevalence of pregnancy induced hypertension was 2.2% and 24.7% had history of two or more abortions.[13] High-risk factors among pregnant patients in rural settings of Pondicherry were studied and it was concluded that 3.15% had hypertension, 1.95% had diabetes, 1.7% had severe anemia, 1.4% had twin pregnancy, 1.4% had hypothyroidism, 1% were Rh negative and 0.5% had BOH.[7] Seema et al had done a retrospective study on high-risk pregnancy in a teaching hospital in South India and found that 7.56% had preeclampsia/Eclampsia, 3.5% antenatal women had anaemia, 2.9% had gestational diabetes and 2.6% were twin pregnancy.[14] Most common infections affecting antenatal women in our study was urinary tract infections (7.17%).

The incidence of anemia in high risk women in our study increased with increase in age. This can be related to multi-parity with increase in age. Risk of previous LSCS has also increased with age in present study. Thus, we found that incidence of anaemia, previous LSCS, abortions and bad obstetric history had increased with age. The morbidity and mortality of antenatal women increases with advanced age. This can be correlated to increase in the incidence of high-risk factors like anemia, hypertension and previous cesarean section with advancing age. Advanced maternal age more than 40 years increases risk of still birth, preterm birth, macrosomia and thus, the incidence of caesarean delivery is significantly increased.15 Women between age of 35-40 years were at increased risk of gestational diabetes, placenta previa, operative vaginal delivery, emergency caesarean sections, postpartum hemorrhage and still birth.[16]

However, present study has its own limitations. It is a retrospective data-based study. Authors were not able to collect the data regarding various factors which might be significantly influencing the pregnancy like education, economic status, age at marriage and history of preterm deliveries.

CONCLUSION

Antenatal surveillance may prevent and treat most of the complications that leads to increased burden of maternal morbidity and mortality in our country. The most important drawback in our study population is lack of antenatal visit in first trimester. Awareness of first trimester registration has to be increased in our population by various health care professionals. Antenatal women with high risk factors should be advised more frequent visits to hospitals and early admission. Early referral to tertiary care center also plays a very important role in timely management of high-risk pregnant women. Effective communication, early detection and timely management are important tools to minimize the risks to mother and fetus and thus, will contribute a lot for decreasing maternal and perinatal morbidity and mortality.

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