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CONSANGUINITY AND MATERNAL AGE;

POSSIBLE RISK FACTORS FOR SPONTANEOUS ABORTIONS IN PAKISTANI FEMALES OF REPRODUCTIVE AGE GROUP (15-49 YEARS).

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ABSTRACT... Objectives: To determine the frequency of risk factors i.e. consanguinity and maternal age associated with spontaneous abortions in Pakistan and to propose ways to reduce them. **Study design:** Cross sectional descriptive study. **Place of study:** Gynecology department of Military Hospital and Combined Military Hospital, Rawalpindi. **Duration of study:** 6 months (September 2015 to February 2016). **Sampling technique:** Non probability convenient sampling. **Methodology:** 150 married female patients in reproductive age group (15-49 years), who were confirmed cases of pregnancy and presented with abortions, were interviewed and responses were filled in a structured questionnaire after written consent. The collected data was then entered and analyzed by SPSS 20.0. **Results:** The major bulk of spontaneous abortions occurred in the maternal age group of 25-35 years (55.3%). A total of 53.3% of abortions occurred in the gestational age of less than 12 weeks. Around 54.7% of females had family history of spontaneous abortions and 65.3% had consanguineous marriage. **Conclusion:** Spontaneous abortions occur more frequently in the females of 25-35 years age group and among the fetuses with gestational age less than 12 weeks (1st trimester of pregnancy). Family history of spontaneous abortions and consanguinity are associated with spontaneous abortions.

Key words: Spontaneous abortions, female, reproductive age group, risk factors, consanguineous marriage.

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INTRODUCTION

"Spontaneous abortion is a pregnancy lost prior to viability, typically defined as 20 weeks from the first day of the last menstrual period, of a fetus weighing less than 500 g".[1]

Early pregnancy loss is unfortunately the most common complication of human gestation, occurring in as many as 75% of all women who are trying to conceive. Most of these losses are unrecognized and occur before or with the next expected menses. Of those that are recognized, 15-20% of cases result in spontaneous abortions (SABs) or ectopic pregnancies. Approximately 5% of couples trying to conceive have 2 consecutive miscarriages, and approximately 1% of couples have 3 or more consecutive losses.[2] According to a study carried out in our setup, the rate of abortion is 10-12 %, of which spontaneous abortions constitute around 69%.[3] Loss of pregnancy bears great physical and mental trauma for the women who have aborted, and it may also compromise the woman's future reproductive health. Therefore, it is essential to study the risk factors involved and generate awareness.

Chromosomal abnormalities are causative in approximately 50 percent of spontaneous abortions; multiple other factors also may play a role.[4] The risk factors for SABs are maternal age [risk of miscarriage was significantly increased in women at higher age (>33 years)] and maternal body mass index (< or =20 kg/ m^2).[5] Increased stress/demands also contribute as a risk factor for SAB.[5] Other risk factors include previous spontaneous abortions, caffeine use (heavy), cigarette smoking and obesity.[6,7,8,9,10,11,12]

According to the largest-reported case-control study on reproductive losses in Alexandria, consanguinity may play a major role in the high rates of prenatal and infant mortality, while advanced maternal age has a significant role in the causation of repeated abortions.[13]

In order to prevent spontaneous abortions, we need to establish the prevalence of different risk factors and their association with the loss of pregnancy. This study is directed to find out the frequency of risk factors of spontaneous abortions.

METHODOLOGY

A cross sectional descriptive study was carried out at Gynecology Department of Military Hospital and Combined Military Rawalpindi for a duration of six months from September 2015 to February 2016.

Non probability convenient sampling was done. 150 married female patients in reproductive age group (15-49 years), who were confirmed cases of pregnancy and presented with abortions were selected. Spontaneous abortion was confirmed by either a histopathology of products of conception from suction D&C or by an hCG level of 5 IU/mL or less with no intervention. Females excluded from the study were those suffering from hypertension, diabetes mellitus, polycystic ovarian disease or other endocrine or systemic disorders. Females having pregnancy loss due to trauma/fall were also excluded.

Informed written consent was taken. They were asked questions from the questionnaire (Annex A) by a doctor in a language they could understand. This close ended structured questionnaire was formulated after deliberation, literature review and discussion. The doctor then filled in the questionnaire according to the answers given by the females.

The collected data was then entered and analyzed by SPSS 20.0. Potential risk factors included in study included maternal age, paternal age, gestational age of fetus, family history, previous spontaneous abortions, use of contraceptives, iron and folic acid supplementation and consanguineous marriage.

RESULTS

150 married female patients in reproductive age group (15-49 years), who were confirmed cases of pregnancy and presented with abortions were studied for presence of different risk factors. 62 females (41.3%) belonged to 15-24 years age group, 83 (55.30%) females to 25-35 years age group and 5 (3.30%) to 36-49 years age group. Thus the major bulk of spontaneous abortions occurred in the maternal age group of 25-35 years.

Husbands of women with spontaneous abortions were divided into three age groups, less than 25 years, 25-40 years and 41-55 years. Seventeen husbands (11.3%) belonged to less than 25 years age group, 114 (76%) to 25-40 years age group and 19 (12.7%) to 41-55 years age group. A total of 53.3% of abortions occurred in the fetuses with gestational age less than 12 weeks. Therefore, most of the spontaneous abortions occurred in the first trimester of pregnancy.

Fifty eight percent of the females had one prior abortion 13% had two and 3% had three or more, indicating previous abortions as a risk factor in subsequent pregnancies. Around 72.70% females had never used any contraceptive method while 27.3% had used a method for contraception. Only 35.3% females had used both iron and folic acid supplementation, 30% had taken folic acid supplementation only, 17.3% did not take iron or folic acid in current pregnancy but had taken in previous pregnancies and 17.3% females had never taken iron or folic acid supplementation.

Ninetty eight females (65.3%) having spontaneous abortions were in a consanguineous marriage. Out of 150 females, 82 females (54.7%) had family history of spontaneous abortions.

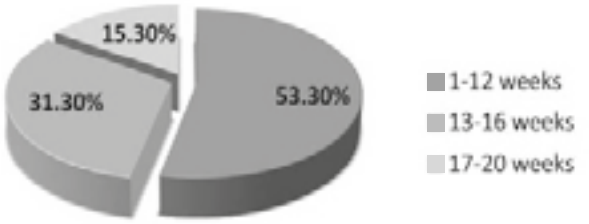

Figure-1. Gestational Age of Fetus at time of Spontaneous Abortion

		Consanguineous Marriage?		Total
		yes	no	
Family history?	yes	64	18	82
	no	34	34	68
Total		98	52	150

Figure-1. Family History and Consanguineous Marriage as Risk Factors for Spontaneous Abortions

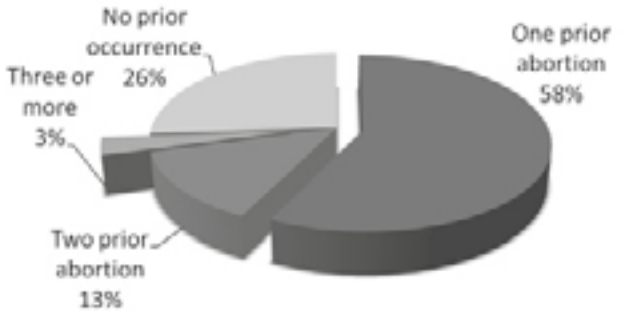

Figure-2. Previous Obstetric History demonstrating Prior Abortions

DISCUSSION

Spontaneous abortion is a common complication of human gestation. According to an estimate, out of the approximately 500,000 maternal deaths that occur each year, abortion complications are responsible for 14% of the deaths.[14] Most of these deaths occur in the developing countries. It is distressing for the couple to lose wanted pregnancy. Mental, physical and social deterioration may occur with the psychological morbidity associated with loss of wanted pregnancy.[3] Our study demonstrated presence and frequency of different risk factors in our setup associated with spontaneous abortions.

Apart from chromosomal abnormalities[4], the risk factors for spontaneous abortions have been found to be increased maternal age, maternal body mass index, increased stress/demands[5,13], heavy caffeine use and cigarette smoking and obesity.[6,7,8,9,10,11,12] Consanguinity has also been found to be an important risk factor.[13] We included maternal age, paternal age, gestational age of fetus, family history, previous spontaneous abortions, use of contraceptives, iron and folic acid supplementation and consanguineous marriage as risk factors in our study.

Consanguineous marriages are a frequently debated topic in our country. Our study demonstrated that consanguinity may play a major role in spontaneous abortions in our setup, as seen in previous studies as well.[13] Overall 65.3% patients had consanguineous marriage. This is an important finding as frequency of spontaneous abortions among consanguineous marriages is quite high and an important factor determining spontaneous abortions.

The previous history of abortions and the last pregnancy abortion have also been found to be significant reasons as risk factors for spontaneous abortions.[3] Our study verified previous abortions as being important risk factors for determining outcome of current pregnancy. Patients who had a previous history of spontaneous abortion were 74% of total. It may be concluded that females having one spontaneous abortion should be given extra attention during subsequent pregnancies and educated more about pregnancy.

Family history was also found to be important risk factor for spontaneous abortions. A total of 54.7% females had family history of spontaneous abortions. This may be due to chromosomal abnormalities leading to spontaneous abortions, as found in other studies.[4]

Most spontaneous abortions occurred during first trimester, 53.3% of abortions occurred in the fetuses with gestational age less than 12 weeks. First trimester is an important component of pregnancy and new mothers may not notice pregnancy during the first four to six weeks. Late detection of pregnancy due to unawareness and

lack of knowledge regarding pregnancy may lead to women not caring about different aspects of pregnancy, in turn leading to spontaneous abortions or other complications.

In order to prevent spontaneous abortions, proper health education and awareness regarding the spontaneous abortions must be provided to the couples, especially those having consanguineous marriages, previous history of spontaneous abortion and family history or other risk factors. Premarital counseling must be done and marriages outside families are to be encouraged through educating people regarding the risks of spontaneous abortions. Women in the age groups of 25-35 years are to be educated properly regarding maintaining proper preconception nutrition. Frequent antenatal checkups once pregnancy is established and antenatal genetic counseling may be of significance for prevention of spontaneous abortions. Further research for determination of association of different risk factors related to spontaneous abortions in our setup must be done as well.

CONCLUSION

Spontaneous abortions occur more frequently in the females of 25-35 years age group and among the fetuses with gestational age less than 12 weeks (1st trimester of pregnancy). Family history of spontaneous abortions and consanguinity are associated with spontaneous abortions.

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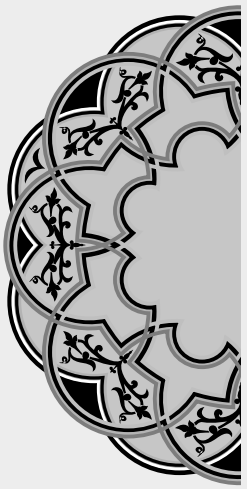

"No one has ever made himself great by showing how small someone else is."

Unknown

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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3	Zahabia Khalid	Composition of questionnaire and finalizing the manuscript	
4	Misha Sabir	Literature review and data collection	
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