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Original Research Article

FREQUENCY OF SPONTANEOUS MISCARRIAGES IN OBESE AND NON-OBESE WOMEN

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Abstract: *Miscarriages are a common complication of pregnancy, affecting approximately 12-15% of all clinically recognized pregnancies in the general population. However, the exact frequency of miscarriages is unknown as they often occur before a woman is aware of her pregnancy. The main objective of this study was to determine the frequency of spontaneous miscarriages in pregnant women and to compare the frequency between obese and non-obese women. This cross-sectional study was conducted in the Gynecology Department of Lady Reading Hospital in Peshawar from November 16, 2019, to November 16, 2020. During this study, 140 patients were observed, and dates calculated their gestation period. A P/V examination was conducted, and a TVS or Pelvic ultrasound was performed to confirm the diagnosis of spontaneous miscarriage. Informed consent was obtained after the diagnosis, and data was collected using an attached Performa. The mean age of the patients in this study was 29 years, with a standard deviation of ± 7.714. Forty-one percent of the patients were primigravida, while 59% were multigravida. The study revealed that the frequency of spontaneous miscarriages was 12% among pregnant women. Furthermore, the incidence of spontaneous miscarriages was more common in obese pregnant women compared to non-obese pregnant women.*

Keywords: Spontaneous Miscarriages, Obese Women, Non-Obese Women

Introduction

The most frequent pregnancy problem, miscarriages, impacts between 12 and 15 percent of all clinically diagnosed pregnancies in the general community. However, because miscarriages often happen before a woman is aware that she is pregnant, the precise frequency of miscarriages is unknown. Because many miscarriages occur before the woman is aware that she is pregnant, the exact frequency of miscarriages is still unknown (Ghimire et al., 2020). Pregnancies that terminate spontaneously are significantly more common than those that carry to term. Fetal chromosomal abnormalities are frequently cited as the cause of the majority of sporadic, non-recurrent miscarriages. One percent of couples who try conception are thought to experience recurrent miscarriage (RM), which is defined as three consecutive pregnancy failures (Upadhyay and Upadhyay, 2018). Various circumstances cause miscarriages, but the fundamental problem is often missed. In around half of the instances, the cause of miscarriage remains unknown despite tremendous efforts to identify the processes. Maternal age, a history of miscarriage, infertility, chromosomal and metabolic abnormalities, uterine malformations, obesity, and immunologic variables are all known risk factors for RM (Iqbal et al., 2021).

Women who have miscarried frequently struggle with anxiety, sadness, and post-traumatic stress disorder, among other psychological distress issues. In addition, women's future reproductive health is further vulnerable in the aftermath of a miscarriage. Preterm delivery, postpartum hemorrhage, low birth weight, and perinatal death are among the issues that are more common in those who have experienced a previous miscarriage (Zargar et al., 2018). Modifiable behavioral risk factors that negatively affect fetal viability are highlighted in specific research. In contrast, non-modifiable risk variables, such as maternal age and genetic influences, such as chromosomal disorders and aberrant uterine architecture, are also linked to miscarriage (Lee et al., 2020).

Active smoking has been linked to an increased risk of miscarriage in 26 nations, according to a recent systematic review and meta-analysis. Similarly, research has connected drinking alcohol and caffeine while pregnant with a higher chance of miscarriage (Adil and Salman, 2018). Both obesity and underweight are significant predictors of miscarriage, according to three systematic reviews and meta-analyses examining the relationship between maternal body mass index (BMI) and miscarriage (Dendana et al., 2018). However, most research supporting these findings was done in developed nations.

Infertility, smoking, body mass index (BMI), age, and polycystic ovarian syndrome (PCOS) have all been studied about miscarriages in a group of 1,196 pregnant women in the past. According to the study, 16 percent of pregnancies end before the sixth or seventh week of gestation. Notably, it was discovered that smoking increased the probability of miscarrying an early pregnancy (Samreen et al., 2020). On the other hand, there was no statistically significant association found between obesity and age and the risk of losing a pregnancy at an early stage. A history of miscarriages has been identified as a risk factor for further losses in the future. This clinical issue is made more complex by the tendency to postpone conception until one is in one's 30s. A miscarriage can have a lasting effect on a couple's future capacity to conceive successfully (Shah et al., 2018). Therefore, the primary goal of the study was to evaluate the frequency of spontaneous miscarriages in obese and non-obese women, as well as to ascertain the frequency of miscarriages in pregnant women.

Methodology

This cross-sectional study was conducted from November 16, 2019, to November 16, 2020, over one year in the gynecology department of Lady Reading Hospital in Peshawar—an approach known as non-probability sequential sampling was used to collect the study's data.

The study's inclusion criteria included the following: women who became pregnant spontaneously and without medical assistance; ultrasound confirmation of a singleton pregnancy; age range of 18 to 45 years; women of any parity; gestation period up to 12 weeks, as determined by the Last Menstrual Period (LMP) or ultrasound; and inclusion of both obese and non-obese pregnant women in the study.

However, several exclusion criteria were set to clarify the study's scope further. These requirements included women who had undergone assisted reproduction, as verified by their medical history; any medical conditions, such as diabetes, thyroid issues, or hypertension, as verified by patient history and medical records; multiple pregnancy cases, as verified by ultrasound; and a history of recurrent miscarriages, as verified by patient history.

This study was carried out in the gynae B unit of the LRH Peshawar Postgraduate Medical Institute with permission from the hospital's ethics and research council. Subjects who met the requirements for inclusion participated in the study. A thorough history was obtained from every participant. Dates were used to calculate the gestation period. There was P/V exanimation. TVS, or Pelvic Ultrasonography, was used to verify the diagnosis. Informed permission was obtained following the diagnosis of spontaneous miscarriage. Data was gathered on the Performa, which was attached. For the patients who met the inclusion criteria, BMI was computed. It was established how frequently spontaneous miscarriages occurred in obese and non-obese women. Then, the frequency of the two groups was contrasted.

The analysis of the data was done with SPSS 16.0. The mean and standard deviation were calculated when it came to numerical variables like age, gravidity, parity, gestational duration, and BMI. For categorical variables, including obesity and non-obesity, as well as spontaneous miscarriages, frequency and percentages were calculated. To examine effect modification, spontaneous miscarriages were stratified according to age, gravidity/parity, gestational period, and BMI. A post-stratification chi-square test was used to look for changes in the effect. A P-value of less than 0.05 is regarded as noteworthy. Tables and charts were used to display every result.

Results

In this study, age distribution among 140 patients was analyzed as 91(65%) patients were in the age range 20-30 years, and 49(35%) patients were in the age range 31-40 years. The mean age was 29 years with SD ± 7.714. The gravida status among 140 patients was analyzed as 57(41%) patients were primi gravida while 83(59%) were multi gravida. Parity status among 140 patients was analyzed as 59(42%) patients were primi para while 81(58%) were multi para. The gestation period among 140 patients was analyzed as 38(27%) patients had a POG range of 1-7 weeks, while 102(73%) patients had a POG range of 8-12 weeks. BMI distribution among 140 patients was analyzed as 109(78%) patients had BMI < 27.2 (non obese) and 31(22%) patients had BMI ≥ 27.2 (obese). The mean BMI was 27 years with SD ± 3.23. Spontaneous miscarriages among 140 patients were analyzed as 17(12%) patients had spontaneous miscarriages while 123(88%) patients didn't have spontaneous miscarriages. Stratification of spontaneous miscarriages concerning age, gravidity/parity, gestation period, and BMI is also given.

Table 01: Demographic data of patients

AGE	FREQUENCY	PERCENTAGE
20-30 years	91	65%
31-45 years	49	35%
Total	140	100%
GRAVIDA		
Primi gravid	57	41%
Multi gravida	83	59%
Total	140	100%
Parity		
Primi Para	59	42%
Multi Para	81	58%
Total	140	100%
POG		
1-7 weeks	38	27%
8-12 weeks	102	73%
Total	140	100%
BMI		
< 27.2 (non obese)	109	78%
≥ 27.2 (obese)	31	22%
Total	140	100%
SPONTANEOUS MISCARRIAGES		
Yes	17	12%
No	123	88%
Total	140	100%

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Table 02: Stratification of spontaneous miscarriages

SPONTANEOUS MISCARRIAGES	20-30 years	31-40 years	TOTAL
Yes	10	7	17
No	81	42	123
Total	91	49	140
SPONTANEOUS MISCARRIAGES	Primi gravida	Multi gravida	TOTAL
Yes	6	11	17
No	51	72	123
Total	57	83	140
SPONTANEOUS MISCARRIAGES	Primi Para	Multi para	TOTAL
Yes	6	11	17
No	53	70	123
Total	59	81	140
SPONTANEOUS MISCARRIAGES	1-7 weeks	8-12 weeks	TOTAL
Yes	5	12	17
No	33	90	123
Total	38	102	140

Table 03: Stratification of spontaneous miscarriages w.r.t obesity

SPONTANEOUS MISCARRIAGES	< 27.2 (non obese)	≥ 27.2 (obese)	TOTAL
Yes	7	10	17
No	102	21	123
Total	109	31	140

The Chi-square test was applied in which the P value was 0.0001

Discussion

The most frequent pregnancy problem, miscarriages, impacts between 12 and 15 percent of all clinically diagnosed pregnancies in the general community. 1 However, because miscarriages often happen before a woman is aware that she is pregnant, the precise frequency of miscarriages is unknown. The majority of miscarriages occur occasionally, are not recurrent, and are frequently caused by genetic abnormalities. There is an 11–15% chance of miscarriages in the first trimester (Edugbe et al., 2020).

According to our research, the average age was 29, with a standard deviation of 0.714. Patients were categorized as primi gravida in 1% of cases and multigravida in 59% of cases. Five8% of patients were multipara, while just 2% were primi para. It was discovered that 12% of pregnant women experienced spontaneous miscarriages (Mahutte et al., 2018). Similar results were noted in a different study conducted by Jeve YB et al., which concluded that spontaneous miscarriage is a significant loss experienced by all expectant mothers. One percent of all women are impacted. Compared to what is clinically acknowledged, the rate of spontaneous miscarriage may be significantly higher (Kutchi et al., 2020; Zitouni et al., 2018). Of all pregnancies, 12 to 15 percent end in spontaneous miscarriage. Similar results were noted in a different study conducted by Nakhai-Pour HR et al. According to this study, 10 percent of clinically diagnosed pregnancies are expected to experience early pregnancy loss, with the majority of these cases happening in the first trimester (Chodankar et al., 2018). The term "miscarriage" is used here to represent all forms of spontaneous early pregnancy loss or potential loss, as opposed to the term "abortion," which is frequently used to refer to all forms of early pregnancy loss because of the divisive social stigma attached to it (Karayiannis et al., 2018). One of the most frequent pregnancy issues is spontaneous miscarriage, which happens in 5–15 percent of cases. Our study did not find a significant correlation between parity and miscarriages, despite earlier research suggesting that the risk of losses may be elevated in multiple pregnancies, perhaps due to an increase in the number of fetuses (Karayiannis et al., 2018; Lee et al., 2020). Furthermore, Mills et al. study revealed that women with diabetes mellitus may have a higher chance of miscarriages; nevertheless, our examination did not discover a significant correlation between miscarriages and diabetes mellitus. Remarkably, a significant and reliable predictor of miscarriages was a prior history of miscarriages, which is in line with the findings of the research done by Zargar et al. (Sarno et al., 2020) (Sarno et al., 2020).

Conclusion

Our study found that 12% of pregnant women experienced spontaneous miscarriages. Additionally, obese pregnant women had a higher incidence of spontaneous miscarriages compared to non-obese pregnant women.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate
Approved by the department Concerned.

Consent for publication
Approved

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Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

***AMMARA UROOJ** (Consultant)*
Coordination of collaborative efforts.
Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript
***SARA ALI KHAN** (Consultant)*
Manuscript revisions, critical input.
Data acquisition, analysis.
***FOQIA AWAN** (Consultant)*
Data entry and Data analysis, drafting article
Data acquisition, analysis.
Coordination of collaborative efforts.

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