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FREQUENCY OF GESTATIONAL TROPHOBLASTIC DISEASE IN FIRST TRIMESTER MISCARRIAGES

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ABSTRACT

Introduction: Gestational trophoblastic disease (GTD) is a group of disorders that range from the premalignant condition of complete and partial molar pregnancies to the malignant conditions of invasive mole, choriocarcinoma, and the extremely rare placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour (ETT).
Objective: To determine the frequency of gestational trophoblastic disease in first trimester miscarriages
Setting: Department of Obstetrics and Gynaecology HMC, Peshawar.
Study Design: Cross-sectional study
Duration of Study: Six months from 30th August 2021 to 30th February 2022.
Material and Methods: All women were subjected to detailed history and clinical examination followed by relevant investigations as per antenatal protocols. Laboratory investigations were included CBC, histopathology and beta HCG. Women who failed to maintain follow up were dropped from the study. All women were managed as per RCOG guidelines
Results: Our study shows that mean age was 27 years with a standard deviation ± 5.92. 113(69%) patients were primi gravida while 51(31%) patients were multi gravida. 108(66%) patients were primi para while 56(34%) patients were multi para. 10(6%) patients had gestational trophoblastic disease while 154(94%) patients didn't have gestational trophoblastic disease.
Conclusion: Our study concluded that the frequency of gestational trophoblastic disease was 6% in first trimester miscarriages

Keywords: gestational trophoblastic disease, first trimester, miscarriages

Introduction

Gestational trophoblastic disease (GTD) is a group of disorders that range from the premalignant condition of complete and partial molar pregnancies (also known as hydatidiform moles) to the malignant conditions of invasive mole, choriocarcinoma, and the extremely rare placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour (ETT)[1]. It develops in the trophoblasts that form part of placenta and assists in the implantation of embryo owing to its abnormal proliferation. Gestational trophoblastic disease includes several conditions that occur during pregnancy or shortly thereafter. It is also highly treatable, and the most women with the

disease will be cured[2]. The definitive diagnosis of a molar pregnancy is made by histological examination[1].

The incidence of gestational trophoblastic disease differs according to geographic distribution. The highest reported incidence was 1/125 live births in Taiwan, while 2/1000 pregnancies in Japan and South East Asia, 1/1500 in United States and 1/1000 in Europe[3].

The risk of GTD is around 20 times higher in extreme of age's i.e. teenagers and late 30s aged 50 years to those aged between 20 and 35 years. The most common underlying theory is that the probability of fertilising an abnormal oocyte is much higher at the extremes of reproductive age[2]. Amongst women diagnosed with partial and complete molar pregnancies, the highest risk occurred in women of aged 50 years, with the risk of a complete hydatidiform mole as high as 1 in 8 patients. A peak in incidence at the opposite end of the reproductive spectrum (women aged 13 years) was seen for complete, but not partial moles. The risk of complete hydatidiform mole was seen to decline gradually until the age of 36 years, after which the incidence gradually increased. The risk of a partial molar pregnancy gradually increased with age[4].

The blood group of the patient and her partner is an interesting risk factor, as this was previously deemed one of the most important variables and historically included in prognostic scoring systems for GTN throughout the world. The highest risk for GTN development involved women of blood group B or AB with an incompatible partner blood group, i.e.: O or A. It is this patient and partner incompatibility that seems to be the main causative factor, yet in 2000 the International Society for the Study of Trophoblastic Disease (ISSTD) removed this risk factor from the prognostic scoring system due to lack of definitive evidence regarding it's influence on outcome[4, 5].

Broad variations in the incidence of GTD have been reported in different parts of the world[6]. Risk factors include extreme of reproductive age, multiparity, past history of spontaneous abortions, endogenous oestrogens, high beta carotene diet, high animal fat diet, ethnicity, ABO blood group, environmental toxins, smoking, alcohol consumption, socioeconomic status and herbicide exposure etc[7-10].

The major contribution of this study is to create awareness about the burden of this disease in local population and to pave way for further research. This will be the first hand evidence at the local level identification. Treatment of these cases is vital as this is a disease of pregnant women which can affect their future health. Therefore, it should be regarded as a high risk pregnancy. Therefore, early diagnosis prompt treatment and close surveillance are mandatory in such cases. The results of this study will be very useful in making future recommendations and suggestions regarding women with first trimester miscarriages.

MATERIALS AND METHODS

Setting: Department of Obstetrics and Gynaecology, HMC, Peshawar

Study Design: Cross-sectional study

Duration of Study: Six months from 30th August 2021 to 30th February 2022.

Study sample size: 164 Sample size was calculated using the WHO software for sample size calculations with the following assumptions: confidence level 95%, anticipated proportion 12.9%[(11)] absolute precision 5%.

Sampling Technique: Non probability consecutive sampling

Sample selection:

Inclusion Criteria

1. Age below 20 or above 35
2. All women with a 1st trimester miscarriage.

3. Patients acceded to participate in trial and give their informed consent

Exclusion Criteria

1. Women with any previous or current malignancy other than gestational trophoblastic disease
2. Patients with lack of follow up or with incomplete medical record were excluded

The above mentioned conditions act as confounders and if included had introduce bias in study result.

Data collection procedure:

Keeping in view the ethical concerns and after approval from hospital ethical and research board, all women meeting the inclusion criteria were enrolled using consecutive non probability sampling. The purpose of study was explained to all women, they were assured the study is done purely for research and data publication, risks and benefits were explained and if agreed upon, an informed written consent was obtained.

All women were subjected to detailed history and clinical examination followed by relevant investigations as per antenatal protocols. Laboratory investigations were included CBC, histopathology and beta HCG. Women who failed to maintain follow up were dropped from the study. All women were managed as per RCOG guidelines under supervision of an expert obstetrician fellow of CPSP having minimum of five years of experience.

All relevant information as name, age, parity, gestational age, signs and symptoms and lab results were recorded on prescribed proforma. All women were offered investigations from hospital. Confounder and other basis were controlled strictly following exclusion criteria.

Data analysis:

Data were entered and analyzed using SPSS version 22.0. Mean and SDs was computed for age, gestational age, height, weight, gravidy, parity and BMI. Frequencies and percentages were calculated for gestational trophoblastic disease, history of Gestational trophoblastic disease, family history of Gestational trophoblastic disease and residence. All results were presented in tables and diagrams/charts where appropriate.

Results

Our study shows that among 164 patients, 110(67%) patients were in age range 20-27 years while 54(33%) patients were in age range 28-35 years. Mean age was 27 years with standard deviation ± 5.92. (Table 1). 93(57%) patients had BMI ≤ 27 Kg/m^2 while 71(43%) patients had BMI ≤ 27 Kg/m^2. Mean BMI was 26 Kg/m^2 with standard deviation ± 3.54. (Table 2). 113(69%) patients were primi gravida while 51(31%) patients were multi gravida. (Table 3) 108(66%) patients were primi para while 56(34%) patients were multi para. (Table 4) 46(28%) patients had POG 1-7 weeks while 118(72%) patients had POG 8-13 weeks. (Table 5) 97(59%) patients were from rural areas while 67(41%) patients were from urban areas. (Table 6) 2(1%) patients had positive family history of gestational trophoblastic disease while 162(99%) patients had negative family history of gestational trophoblastic disease. (Table 7) 10(6%) patients had gestational trophoblastic disease while 154(94%) patients didn't had gestational trophoblastic disease. (Table 8)

Table No 1. Age Distribution

Age	**Frequency**	**Percentage**
20-27 years	110	67%
28-35 years	54	33%
Total	**164**	**100%**

Table No 2. BMI distribution

BMI	Frequency	Percentage
≤ 27 Kg/m^2	93	57%
>27 Kg/m^2	71	43%
Total	**164**	**100%**

Table No 3. Status of gravidity

Gravidity	Frequency	Percentage
Primi Gravida	113	69%
Multi Gravida	51	31%
Total	**164**	**100%**

Table No 4. Status of Parity

Parity	Frequency	Percentage
Primi para	108	66%
Multi para	56	34%
Total	**164**	**100%**

Table no 5. Gestational age

Gestational age	Frequency	Percentage
1-7 weeks	46	28%
8-13 weeks	118	72%
Total	**164**	**100%**

Table No 6. Residence

Residence	Frequency	Percentage
Rural	97	59%
Urban	67	41%
Total	**164**	**100%**

Table No 7. Family History of Gestational Trophoblastic Disease

Family History of GTD	Frequency	Percentage
Positive	2	1%
Negative	162	99%
Total	**164**	**100%**

Table No 8. Gestational trophoblastic disease

Gestational trophoblastic disease	Frequency	Percentage
Yes	10	6%
No	154	94%
Total	**164**	**100%**

Discussion

Gestational trophoblastic disease (GTD) is a group of disorders that range from the premalignant condition of complete and partial molar pregnancies (also known as hydatidiform moles) to the malignant conditions of invasive mole, choriocarcinoma, and the extremely rare placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour (ETT)[1]. It develops in the trophoblasts that form part of placenta and assists in the implantation of embryo owing to its abnormal proliferation. Gestational trophoblastic disease includes several conditions that occur during pregnancy or shortly thereafter. It is also highly treatable, and the most women with the disease will be cured[2]. The definitive diagnosis of a molar pregnancy is made by histological examination[1].

Our study shows that mean age was 27 years with standard deviation ± 5.92. 93(57%) patients had BMI ≤ 27 Kg/m^2 while 71(43%) patients had BMI ≤ 27 Kg/m^2. Mean BMI was 26 Kg/m^2 with standard deviation ± 3.54. 113(69%) patients were primi gravida while 51(31%) patients were multi gravida. 108(66%) patients were primi para while 56(34%) patients were multi para. 46(28%) patients had POG 1-7 weeks while 118(72%) patients had POG 8-13 weeks. 97(59%) patients were from rural areas while 67(41%) patients were from urban areas. 2(1%) patients had positive family history of gestational trophoblastic disease while 162(99%) patients had negative family history of gestational trophoblastic disease. 10(6%) patients had gestational trophoblastic disease while 154(94%) patients didn't had gestational trophoblastic disease.

In one study the prevalence of molar pregnancy found in one of the study was (12.1%) and There was not statistical difference in the sociodemographic variables and risk factors analyzed: patient age, familial incomes, years in scholar courses, prior pregnancies, deliveries, spontaneous abortions, number of sons.[12]

In another study the prevalence of hydatidiform mole was 6.1% (11/181). All detected moles were complete hydatidiform moles, and there were no diagnosed partial hydatidiform moles. Clinical diagnosis of molar pregnancy was suspected in 13 patients, but only 69.2% (9/13) were confirmed as molar pregnancies histologically. Two cases were clinically unsuspected. Factors that had a significant relationship with complete hydatidiform mole included maternal age of 35 years and above (aOR 13.5; CI: 1.46–125.31;), gestational age beyond the first trimester at the time of uterine evacuation (aOR 6.2; CI: 1.07–36.14;), and history of previous abortion (aOR 4.3; CI: 1.00–18.57;). The prevalence of complete hydatidiform mole was high at 6.1%. Associated risk factors included advanced maternal age (35 years and above), history of previous abortions, and gestational age beyond the first trimester at the time of evacuations.[13]

Conclusion

Our study concluded that the frequency of gestational trophoblastic disease was 6% in first trimester miscarriages

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