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Case Study

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ASSOCIATION OF RISK FACTORS WITH GESTATIONAL TROPHOBLASTIC DISEASE -A CASE CONTROL STUDY

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ABSTRACT

Background: Gestational Trophoblastic Disease (GTD) consists of a group of disorders arising from tissues of placental origin. **Objective:** To find out the association of risk factors with gestational trophoblastic disease. **Method:** This case control study was carried out in the Department of Obstetrics and Gynaecology, Sir Salimullha Medical College & Mitford Hospital, Dhaka from March 2006 to August 2006 for a period of 6 months. There were a total of 6125 obstetric admissions during the study period, which included 40 cases of trophoblastic disease. These 40 cases of GTD attended the Outpatient Department (OPD) and emergency cases in the Department of Obstetrics and Gynaecology during this period were selected as cases. Another 80 patients were selected as controls who had delivered a term normal baby just after the admission and had no history of GTD. **Result:** Incidence of GTD was 6.53 per thousand. Among 40 GTD patients, 32 (80.0%) had hydatidiform mole, 4 (10.0%) persistent trophoblastic disease, 3 (7.5%) choriocarcinoma and the rest 1 (2.5%) invasive mole. Women with age < 20 years were significantly higher in cases than controls. Nulliparity is significantly higher in cases. Blood group A or AB was significantly higher in cases than in controls. Patient with monthly income <3,000 Tk. was significantly higher in cases than controls. ANC was significantly higher in control than cases. **Conclusion:** The incidence of GTD in this study was 6.53 and hydatidiform mole was the highest comparing other GTD types. The disease was common in low para, in low socio-economic status and less number of ANC.

KEYWORDS: Gestational Trophoblastic Disease (GTD), Risk factor, Choriocarcinoma.

INTRODUCTION

Gestational trophoblastic disease (GTD) constitutes a spectrum of tumors and tumor like conditions characterized by proliferation of pregnancy associated trophoblastic tissue of progressive malignant potential.[1,2,3] It includes a spectrum of interrelated tumors including complete and partial hydatidiform mole, invasive mole, placental site trophoblastic tumors (PSTT) and choriocarcinoma. Trophoblastic tumors are either benign, potentially malignant or malignant tumors and histopathologically show various grade of differentiation from a recognizable chorionic villous structure to highly virulent anaplastic masses of cells.[4] In addition to being the first and only disseminated solid tumours that have proved to be highly curable by chemotherapy, they elaborate a unique and characteristic tumour marker, human chorionic gonadotropin (HCG).[5]

Hydatidiform mole is an abnormal pregnancy characterized grossly by multiple grapes like vesicle filling and distending the uterus, usually in the absence of intact fetus.[4] It is a well recognized entity since the time of Hippocrates and always aroused interest because of its wide spectrum of presentation and complications. Sauger in 1888 suggested that this is a special tumour derived from deciduas of pregnancy. Marchand in 1895 demonstrated that the tumour originated from chorionic epithelium[6] Hydatidiform mole is the benign form of trophoblastic disease which is a potentially malignant condition and may progress to the frankly malignant disorder of choriocarcinoma.[7] The risk of malignant change from Hydatidiform mole is 5%.[8]

The incidence of GTD varies significantly across the world with 0.4 per 1000 birth in United States of America to 12.5 per I 000 births in Taiwan.[9] In Nepal,

records from different hospitals in Kathmandu valley have recorded its incidence as 5.1, 2.9, 2.8 and 4.1 per 1000 live births.[10] The trophoblastic tumour has a striking geographical distribution.[4] In Europe and North America they are rare; they are more common in the Middle East and occur most frequently in the South East Asia. There are some epidemiological features, which may account for variation in the incidence of this disease. The risk factors are: age less than 20 years and above 40 years, parity, blood group, race, socioeconomic condition.[5] The occurrence of a trophoblastic tumour can be regarded as the result of breakdown in delicate host invader balance. There are also reports of matching leukocyte HLA types between the woman and her partner (Tindal, 2001). A woman with a history of one hydatidiform mole seem to have a ten fold risk for repeat hydatidiform mole as compared with women who have no history of hydatidiform mole.[11] GTD has a variable & wide spectrum of clinical presentation.

Though exact cause is not known, association of above risk factors with GTD is not evaluated in our country. Considering the multi dimensional effect of GTD on woman's health as well as the impending cancerous threat (choriocarcinoma), the study was done to find out the risk factors of GTD in context of our country.

Objective

To evaluate the association of risk factors with gestational trophoblastic disease.

METHODOLOGY

This case control study was carried out in the Department of Obstetrics and Gynaecology, Sir Salimullha Medical College & Mitford Hospital, Dhaka from March 2006 to August 2006 for a period of 6 months. There were a total of 6125 obstetric admissions during the study period, which included 40 cases of gestational trophoblastic disease. These 40 patients of GTD who attended the Outpatient Department (OPD) and emergency cases in the Department of Obstetrics and Gynaecology were selected as cases and another 80 patients were selected as controls who had delivered a term normal baby after admission and had no history of GTD.

RESULTS

Frequency of GTD was 6.53 per thousand. Among the all cases of GTD, 32 (80.0%) were diagnosed as hydatidiform mole, 4 (10.0%) persistent trophoblastic disease, 3 (7.5%) choriocarcinoma and the rest 1 (2.5%) invasive mole (Table I). Women with age < 20 years were significantly higher in cases than controls (Table II). Blood group A or AB was significantly higher in cases than in controls (Table III). ANC was significantly higher in control than cases (Table IV). There was no statistical significant difference in prior sub-fertility between case and controls (V). There was no statistical significant difference regarding contraceptive use between case and controls (Table VI).

Table I: Types of GTD cases diagnosed at admission

Type of GTDs	Frequency (n)	Percentage(%)
Total	6125	
GTDs	40	0.653
Hydatidiform	32	80.0
Persistent trophoblastic disease	4	10.0
Choriocarcino1na	3	7.5
Invasive mole	1	2.5

Table II: Age distribution of the patients.

Age (years)	Group		P value
	Case (n%)	Control(n%)	
<20	10 (25.0)	8 (10.0)	0.030
20-24	12 (30.0)	31 (38.8)	0.346
25-29	10 (25.0)	29 (36.2)	0.214
30-34	2 (5.0)	4 (5.0)	0.654
35-39	4 (10.0)	8 (10.0)	0.746
>=40	2 (5.0)	0 (0.0)	0.109
Total	40 (100.0)	80 (100.0)	
Mean± SD	25.3 ± 7.0	24.1 ± 4.9	0.270

Table III: Distribution of patients according to blood group in caseand control.

Blood group	Group		P value
	Case n(%)	Control n(%)	
B or O	18(45.0)	44 (55.0)	0.301
A or AB	22 (55.0)	24 (30.0)	0.007
Unknown	0 (0.0)	12 (15.0)	
Total	40 (100.0)	80 (100.0)	

Table IV: Ante-natal checkup of the patients in case and control.

ANC	Group		P value
	Case n(%)	Control n(%)	
No checkup	38 (95.0)	4 (5.0)	0.001
1-3 times	2 (5.0)	29 (36.2)	0.002
≤ 4 times	0 (0.0)	47 (58.8)	0.001
Total	40 (100.0)	80 (100.0)	
Mean± SD	0.12±0.60	4.5 ± 0.5	0.001

Table V: Prior sub-fertility of the patients.

Prior sub- fertility	Group		P value
	Case n (%)	Control n (%)	
Present	3 (7.5)	9 (11.2)	0.348
Absent	37 (92.5)	71 (88.8)	
Total	**40 (100.0)**	**80 (100.0)**	

Table VI: Contraceptive history of the patients.

Contraceptive History	Group		P value
	Case n (%)	Control n (%)	
Natural method	8 (20.0)	19 (23.8)	>0.05
Oral contraceptive	12 (30.0)	24 (30.0)	
Barrier method	9 (22.5)	17 (21.3)	
Injection/Norplant	1 (2.5)	3 (3.8)	
Never used	10 (25.0)	13 (16.3)	
Total	**40 (100.0)**	**80 (100.0)**	

DISCUSSION

There were a total of 6125 obstetric admissions during the study period, which included 40 cases of trophoblastic disease. The incidences of GTD was 6.53 per thousand pregnancies. Khan et al.[12] revealed incidence of GTD 8.27 per thousand in Bangladesh, Khanum and Shamsher[13] revealed 11.8 per thousand in Pakistan, Koirala et al revealed 3.94 per thousand in Nepal, Fatima et al. revealed 5.0 per thousand in Pakistan.[15]

Of them 80% were diagnosed as Hydatidiform Mole, 10% persistent trophoblastic disease, 7.5% choriocarcinoma, 2.5% invasive mole. Khanum and Shamsher, Koirala et al., Khaskheli et al., and Aziz et al. reveled the similar result.[13,17]

In this study highest incidence (55.0%) was found in age group 20-29 years and similar results were reported from Aziz et al[17] Sadiq & Pa njw ani[18] Koirala et al. [14] Women with age group <20 years was significantly ($p<0.05$) higher in cases compared to control group in our study. GTD is higher among the woman under 20 years of age or over 35 years of age.[19]

Trophoblastic tumour are more likely to arise as a consequence of 1st pregnancy (Tindal, 2001).[4] In this study nullipara patients (30.0%) were significantly ($p<0.05$) higher in cases compare to control group which support the above statement. Fatima et al.[15] found 36.5% and Aziz et al.[17] found 42:4% nullipara. The study of 310 cases by Mungan et al. showed nulliparity was found to be associated strongly with Hydatidiform Mole in 60% cases.[20]

In this study, blood group A or AB (55.0%) cases were significantly higher than control group (30.0%) and the difference was significant ($p<0.05$). Women with blood group A had been shown to have a greater risk than blood group O women.[19] Twenty-one (32.8%) women were of blood group A positive.[14] In this study 77.5% patient came from low socio-economic condition in contrast to 35% in control. It correlates with the statement that GTD occurs in patients of low socioeconomic status.[15-17]

In this study, prior subfertility was not statistically significant ($p>0.O5$) in case group in comparison to control group.[21] There was no relationship between infertility treatment and subsequent development of GTD.[22]

In this study, no significant difference was noted regarding contraceptive practice among case and control group.[23] In this study, history of abortion was significantly higher in cases than in control. The risk for GTD in the women with spontaneous miscarriages is higher comparing with women with no previous miscarriage.[24]

CONCLUSION

The incidence of GTD in this study was 6.53 and hydatidiform mole was the highest comparing other GTD types. The disease was common in low para, in low socio- economic status and less number of ANC.

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