Original Article

The Gestational Trophoblastic Diseases: A Ten Year Retrospective Study

Razieh Mohammadjafari, M.D.[1]*, Parvin Abedi, M.D.[2], Mitra Tadayon Najafabady, M.Sc.[2]

1. Gynecology Department, Imam Khomeini Hospital, Ahvaz Medical University of Jondi Shapur, Ahvaz, Iran
2. Faculty of Nursing and Midwifery, Ahvaz Medical University of Jondi Shapur, Ahvaz, Iran

Abstract

Background: Gestational trophoblastic disease (GTD) defines a heterogenenous group of interrelated lesions that arise from the trophoblastic epithelium of the placenta. There are several histologically distinct types of GTD: hydatiform mole (complete or partial), persistant/invasive gestational trophoblastic neoplasia (GTN), choriocarcinoma and placenta site trophoblastic tumors. The aim of this study was to determine the frequency and risk factors of GTD among women admitted to Imam Khomeini Hospital in Ahvaz, Iran.

Materials and Methods: This was a cross-sectional study conducted at Imam Khomeini Hospital in Ahvaz, Iran. All hospital records related to GTD (132) from 1996 until 2006 were reviewed. Demographic and histo-pathologic characteristics were extracted. Chi-square and Fisher-exact tests were used to analyze all variables. $P \leq 0.05$ was considered statistically significant. SPSS, version 11 was used for statistical analysis.

Results: The mean age of patients was 27.6 years. Most patients who presented with GTD were of ages 18-35 years (71.3%). There was no relationship between age and hydatiform mole during the reproductive years. There were 28 (18.9%) patients over the age 40, of which 18 (15.90%) of these had a complete hydatiform mole. Within this group, 9 (6.8%) changed to a persistent mole. There was a significant relationship between age over 40 and complete mole ($p<0.02$). The percentage of patients with blood groups A and O was the same (37.9%). There was a significant relationship between blood groups (O+ and A+) and complete mole ($p<0.05$).

Conclusion: The most common age range for hydatiform mole was 18-35 years. Women over the age of 40 had a more complete hydatiform mole, which is similar to the other countries. Age and blood group are two risk factors for hydatiform mole.

Keywords: Gestational Trophoblastic, Hydatiform Mole, Choriocarcinoma

Introduction

Gestational trophoblastic disease (GTD) defines a heterogenenous group of interrelated lesions arising from the trophoblastic epithelium of the placenta. All forms of GTD are characterized by a distinct tumor marker, the beta subunit of human chorionic gonadotropin (hCG). There are several histologically distinct types of GTD: hydatiform mole (complete or partial), persistent/invasive gestational trophoblastic neoplasia (GTN), choriocarcinoma and placenta site trophoblastic tumors (1, 2).

Complete and partial hydatiform moles are non-invasive, localized tumors that develop as a result of an aberrant fertilization event which leads to a proliferative process. They comprise 80% of GTD cases. The remaining three categories of GTD represent malignant disease due to their potential for local invasion and metastases. Malignant GTD can develop from a molar pregnancy or can occur following any gestational experience such as a spontaneous or induced abortion, ectopic pregnancy (3, 4), preterm or term pregnancy. The incidence of hydatiform mole ranges from 23 to 1299 cases per 100,000 pregnancies, while malignant GTD is less common. North American and European countries tend to report low or intermediate rates of disease, whereas Asian and Latin American nations often have high rates (5, 6).

Although age, geographic location, ethnicity, low socioeconomic status, history of previous mole or abortion, history of oral contraceptive or intrauterine device use, blood group, radiation and artificial insemination have been suggested as risk factors, little is known about its etiology (7).

There have been few studies concerning the fre-

Received: 13 Jul 2009, Accepted: 31 Jan 2010
*** Corresponding Address: Gynecology Department, Imam Khomeini Hospital, Ahvaz Medical University of Jondi Shapur, Ahvaz, Iran**
Email: rmj41@yahoo.com

Royan Institute
International Journal of Fertility and Sterility
Vol 4, No 1, Apr-Jun 2010, Pages: 1-4

quency and risk factors of GTD in Iran. This study was, therefore, conducted to determine the frequency and risk factors of GTD amongst women who were admitted to Imam Khomeini Hospital in Ahvaz, Iran.

Materials and Methods

This was a cross-sectional study conducted during 2007 at the Imam Khomeini Hospital in Ahvaz, Iran. The hospital records of women admitted from May 1997 until May 2007 were reviewed. Imam Khomeini Hospital is a referral educational hospital that accepts patients with trophoblastic diseases from Khuzestan Province, south western Iran. A questionnaire that consisted of 20 questions pertaining to demographics, in addition to biochemical and histo-pathological characteristics of the patients was used for data collection. This study was approved by the Ahvaz Jondi-Shapor Medical University Ethics Committee. All information gathered from hospital records was considered confidential.

The chi-square and Fisher's exact tests were used to analyze all variables. $P \leq 0.05$ was considered statistically significant. SPSS, version 11 was used for statistical analysis.

Results

Overall, 132 hospital records of patients diagnosed with proliferative diseases were reviewed. As illustrated in table 1, the mean age of patients was 27.6 years. Most patients with a diagnosis of molar pregnancy were of the age range 18-35 (71.3%). According to the chi-square test there was no significant relationship between age and molar pregnancy.

There were 28 (18.9%) patients over the age of 40, of which 18 (15.90%) had a complete hydatiform mole. Of these, 9 (6.8%) changed to a resistant mole.

Table 1: Characteristics of women with molar pregnancy

Characteristics	%	No.	p-value
Age group (years)			
<18	13	9.8	NS
18-35	91	71.3	NS
>35	28	18.9	p=0.02
Parity			NS
1	48	36.4	
2-3	33	25	
4-5	20	15.1	
>5	31	23.5	
History of spontaneous abortion			NS
Positive	28	18.9	
Negative	104	81.1	
Treatment			
Suction curettage	74	56.2	
Hysterectomy	6	4.5	
Suction curettage and chemotherapy	46	34.8	
Hysterectomy and chemotherapy	6	4.5	
Blood type			
A	50	37.9	p<0.05
O	50	37.9	p<0.05
B	25	18.9	NS
AB	7	5.3	NS

NS: Not Significant

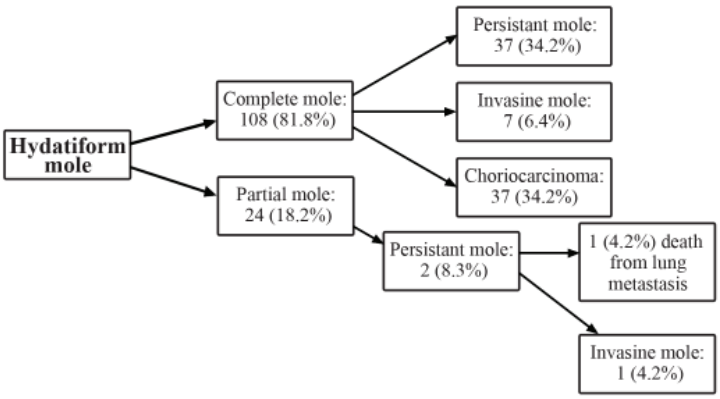

Fig 1: Various types of hydatiform moles among patients

There was a significant relationship between age over 40 and complete hydatiform mole (Fig 1).
Also there was a significant relationship between age greater than 40 and persistent mole. The Fisher's exact test showed a significant relationship between complete mole and age over 40 ($p<0.02$).
As shown in figure 1, 108 (81.8%) patients had a complete mole and 24 (18.1%) had a partial mole. Within the partial mole group, there were patients (8.3%) with progression to persistant moles. From 108 patients who presented with complete moles, 37 (34.2%) progressed into persistant moles.
Table 1 shows that the percentage of patients with blood groups A and O was the same (37.9%). The chi-square test showed a significant relationship between blood groups A and O and complete mole ($p<0.05$). Overall, 127 (96.3%) patients were Rh positive and 5 (3.7%) patients were Rh negative.

Discussion

GTD mostly occurs during the reproductive years (5, 6). In this study, 71.3% of the patients' ages ranged from 18-35 years. Women with a complete hydatiform mole are usually older than those diagnosed with a partial mole. In a retrospective study of 112 patients, approximately 70% had a hydatiform mole and 30% were diagnosed with choriocarcinoma. Of these, only 20% of the patients were over age 35 and the average age was 28.5 years (8). The results of the present study have been supported by the findings of the abovementioned studies.
A diagnosis of complete mole is most common in women under age 20 and over age 39, whilst the partial mole is more common in women between the ages of 20-30. The complete mole is most common amongst women from the Gulf region of the Middle East, while the partial mole is most common amongst Southeast Asians (9). In the current study, there was a significant relationship between an age greater than 40 and complete mole. There was no significant relationship between the incidence of invasive mole, choriocarcinoma, and demographic characteristics.
The results of the present study in terms of the relationship between age and GTD have been supported by other studies. In one study researchers found that with increasing age, the ratio of partial mole to complete mole increased from 0.9% to 2.6%. Researchers have also found that, at the onset and end of the reproductive age, the incidence of hydatiform mole will increase to double compare to all reproductive ages (6).
Blood groups A and O can act as predisposing factors for the development of a hydatiform mole and women with blood group A who marry men with blood group O, incur greater risk for hydatiform mole development (10). In the present study there was a significant relationship between blood groups A and O and the development of a complete mole. Because the present study used information from the patients' hospital records, we were unable to access information pertaining to the spouses' blood groups.
More than 80% of hydatiform moles are benign. In 10-15% of cases, hydatiform moles may develop into invasive moles. Additionally, in 2-3% of cases, hydatiform moles may develop into choriocarcinomas which are malignant. (11). Our findings are similar to the mentioned study, as two patients in the partial mole group showed the presence of both metastasis and an invasive mole.
There are some limitations to this study. The data was collected from hospital records and there was no accessibility to the patients. Therefore, some information such as the husband's blood groups was not recorded in the patients' hospital records.

Conclusion

The present study shows that the most common

age for hydatiform mole development was 18-35 years. Women over the age of 40 had more complete hydatiform mole formation, which is similar to the ages seen in other countries.
Additionally, age and blood groups are risk factors for GTD.

Acknowledgements

Thanks for the Imam Khomaini Hospital staffs for their immense cooperation during this study.
Thanks also extended to the Ahvaz Jondi Shapur Medical University- Ahvaz-Iran for their cooperation and paying all expenses of this study. There is no conflict of interest in this article.

References

1. Cunnigham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY. Gastational trophoblastic diseas. Williams obstetrics. 22th ed. New York: Mc Graw Hill; 2005; 274-278.
3. Cortes-Charry R, Figueira LM, Garcia-Barriola V, Gomez C, Garcia I, Santiago C. Gestational trophoblastic disease in ectopic pregnancy: A case series. J Reprod Med. 2006; 51: 760-763.
4. Gillespie AM, Lidbury EA, Tidy JA, Hancock BW. The clinical presentation, treatment, and outcome of patients diagnosed with possible ectopic molar gestation. Int J Gynecol Cancer. 2004; 14: 366-369.
5. Altieri A, Franceschi S, Ferlay J, Smith J, La Vecchia C. Epidemiology and aetiology of gestational trophoblastic diseases. Lancet Oncol. 2003; 4: 670-678.
6. Matsui H, Iitsuka Y, Yamazawa K, Tanaka N, Seki K, Sekiya S. Changes in the incidence of molar pregnancies. A population_based study in chiba prefecture and Japan between 1974 and 2000. Hum Reprod. 2003; 18(1): 172-175.
7. Tham BW, Everard JE, Tidy JA, Hancock BW. Gestational trophoblastic disease in the Asian population of Northern England and North Wales. BJOG. 2003; 110(6): 555-559.
8. Hayati AR, Tan GC. Clinicopathologic and Immunohistochemical differences in complete and partial hydatiform moles. General Hospital Kualalumpur: 2003; 19-28.
9. O'Connor J. Pathology 2nd ed. Edinburgh: Mosby; 2002.
10. Berkowitz Rs, Bernstein MR, Harlow BL, Rice LW, Lage JM, Lage JM, Goldstain DP, et al. Case control study of risk factors for partial molar pregnancy. Am J obstet Gynecol. 1995; 173(3 pt1): 788-794.
11. Cotran RS, Kumar V, Fausto N, Nelso F, Robbins SL, Abbas AK. Robbins and Cotran pathologic basis of Disease. 7th ed. Philadelphia: St. Louis: Saunders; 2005; 1112.