Original Article

Frequency of Molar Pregnancies in Health Care Centers of Tehran, Iran

Alireza Almasi [1], Fariba Almassinokiani [2,3*], Peyman Akbari [4]

1- Department of Radiology, Faculty of Medicine, Iran University of Medical Sciences (IUMS), Tehran, Iran
2- Minimally Invasive Surgery Research center, Iran University of Medical Sciences, Tehran, Iran
3- Department of Obstetrics and Gynecology, Rasoul-e-Akram Hospital, Iran University of Medical Sciences (IUMS), Tehran, Iran
4- Tehran University of Medical Sciences (TUMS), Tehran, Iran

Abstract

Background: Hydatidiform mole is an important obstetric problem which can result in harmful and serious outcomes. In this study, an attempt was made to determine the proportion of hydatidiform mole in prenatal clinics of Iran University of Medical Sciences (IUMS) to find the precise frequency of this disease.

Methods: Between January 2012 and January 2013, all women who immediately after positive pregnancy test or after retarded menstruation came to prenatal clinics in health care centers of IUMS were included in the study. The women were followed until 8-10 weeks of pregnancy and at this time abdominal sonography was used for confirmation or exclusion of molar pregnancy.

Results: In this descriptive study between January 2012 and January 2013, 8614 pregnant women with mentioned criteria were included and 61 cases of hydatidiform mole were diagnosed (0.7% or 7 per 1000 pregnancy). Ten cases (16.4%) were patients with partial moles. There was no significant difference in blood types in molar and non-molar pregnancies, but molar group differed significantly from non-molar group in terms of history of molar pregnancy, abortion, OCP use and ovulation induction.

Discussion: Proportion of hydatidiform mole in this study was more than the reported European and American statistics.

** Corresponding Author:*
Fariba Almassinokiani, Department of Obstetrics and Gynecology, Rasoul-e-Akram Hospital, Sattarkhan St., Niayesh St., Tehran, Iran
E-mail:
dralmassi@yahoo.com

Received: Jan. 26, 2014
Accepted: Apr. 23, 2014

Keywords: Gestational trophoblastic disease, Hydatidiform mole, Proportion.
To cite this article: Almasi AR, Almassinokiani F, Akbari P. Frequency of Molar Pregnancies in Health Care Centers of Tehran, Iran. J Reprod Infertil. 2014;15(3):157-160.

Introduction

Hydatidiform mole is a part of generic term, Gestational Trophoblastic Disease (GTD). This term describes a spectrum of abnormal trophoblastic proliferation associated with villous enlargement (moles) or neoplasm without villi (choriocarcinoma, placental site trophoblastic tumor). At present, hydatidiform mole (HM) occurs in 1-2 per 1000 pregnancies in Europe and the United States. HM is much more frequent in some Asian countries but these data were from hospital studies and thus misleading (1-3). Approximately, 15-20% of cases of complete moles require future treatment with chemotherapy (2). Currently, there is no reliable method to determine which molar pregnancy will be cured after evacuation or in which, further treatment will be required. Fortunately, a change in Beta-HCG level gives a very accurate assessment of the level of disease activity and this forms the basis of the follow-up protocol (2, 4).

The important point about HM is that it can be changed to other forms of GTD which need chemotherapy, so early detection and treatment of HM is significant. Prevalence of HM in different countries is different and perhaps it depends to socioeconomic, genetic, nutritional, cultural and other factors. In a survey in Pakistan, the incidence of GTD was 28 per 1000 live births and

70% of them were HM (5). In a report from Tunisia, the frequency of complete mole was 1 per 1347 deliveries (6) and in Nigeria, it was 3.8 per 1000 deliveries (7). In Morocco, the incidence of HM was 4.3 per 1000 pregnancies (8). In Nepal, it was 1 per 276 births (9). In Texas, incidence of GTD was 2.06 per 1000 live births and it was more prevalent in Hispanics (1). In a report from Brazil, the incidence of HM was 8.5 per 1000 deliveries (10). In Finland, the incidence of HM was reported to be 9.84 per 1000 deliveries (11) and in Sweden, it was 1.2 per 1000 deliveries (12). In UK, HM was reported to be 1 in 591 viable conceptions (13). In Japan, the incidence of complete mole has decreased since 1991 and at present is as low as the one in Europe or in USA and is 2 in 1000 pregnancies (14, 15).

Almost all of these researches are retrospective and the statistics are derived from obstetric admissions and GTD patients referred to trophoblastic disease center and/or pathology reports and hospital ICD-9 codes. In this study, pregnant women from early pregnancy and after positive pregnancy test, until 8-10 weeks of pregnancy were evaluated to detect the proportion of HM in prenatal clinics in health care centers of IUMS.

Methods

Between January 2012 and January 2013, all women who immediately after positive pregnancy test or after retarded menstruation came to prenatal clinics in health care centers of IUMS, were included in the study. They were followed until 8-10 weeks of pregnancy and at this time abdominal sonography was used to check the well-being of their fetuses. If fetal heart rate was seen on abdominal ultrasound, the molar pregnancies could be ruled out. If the pregnant woman had abortion or bleeding before this time, sonography and the evidence of pathologic evolution were used to determine the presence or absence of HM. Therefore, the proportion of HM in all pregnant women was determined.

The data were analyzed by SPSS version 13, using mean and standard deviation and percentages. Chi squared and Fisher exact tests were used for descriptive data analysis.

Results

In this cross sectional study, 8614 pregnant women with mentioned criteria were included. 61 cases of hydatidiform mole were diagnosed (0.7% or 7 per 1000 pregnancy). Partial moles were diagnosed in 10 cases (16.4%) of molar pregnancies. The age range of women was 17-48 years (Table 1). The mean age for non-molar group was 34.2±3.41 and mean age for molar group was 26.6±5.3 years ($p<0.05$). In 19.7% of molar and 0.1% of non-molar pregnancies, patients had a history of molar pregnancy ($p<0.05$). In 23% of molar and 3.7% of non-molar pregnancies, there was a history of using oral contraceptive pills before pregnancy ($p<0.05$). In 8.1% of molar and 0.4% of non-molar pregnancies, this pregnancy was due to assisted reproductive technology ($p<0.05$). In 19.7% of molar and 5.4% of non-molar pregnancies, there was a history of abortion in the last pregnancy ($p<0.05$). The distribution of blood types was not significant between molar and non-molar pregnancies. Blood type O with frequency of 40.1% in non-molar group and 32% in molar group was the most common blood type.

Table 1. Age distribution of molar and non-molar pregnancies

Age	Molar		Non-molar	
	Frequency	Percent	Frequency	Percent
15-20	313	%3.6	9	%14.8
21-25	865	%10.1	16	%26.2
26-30	1823	%21.3	25	%41.0
31-35	3525	%41.2	6	%9.8
36-40	1600	%18.8	5	%8.2
>41	427	%5	0	%0
Total	8553	%100	61	%100

Discussion

In this study, the proportion of HM in pregnant women in prenatal clinics in health care centers of IUMS in 2012 was 7 in 1000 pregnancies. It appeared that the rate of HM in Asian countries is more frequent than Europe and USA; however, these data were from hospital studies and therefore misleading (3). The difference of this study from others is that the pregnant women were followed until confirmation or exclusion of a molar pregnancy, but in other studies, the statistics were derived from admission of cases with molar pregnancies in hospitals.

It seems that there are many variations in the incidence of HM in different countries and in some studies, it is reported that the incidence of HM in Asia is 5-15 times more than western countries (3, 16, 17). A number of environmental factors might contribute to the incidence of complete mole. For example, a low-carotene diet and vitamin A deficiency, age of mothers, parity, history of previous

molar pregnancy, history of OCP intake, pregnancies due to ovulation induction and type A blood group may account for the incidence (4). In a Korean study, the incidence of HM was 2 per 1000 deliveries (18). In Pakistan, in a total of 1056 obstetric admissions, the frequency of GTD was 28 per 1000 live births and HM was the commonest type of GTD (70%). In this study, the frequency of GTD was higher than international studies (5). In China, it was 3.87 per 1000 live births (19).

In most studies, the incidence of HM was higher in women under 20 and over 40. In a retrospective study between 1996-2005, in Nigeria, incidence of HM was 3.8 per 1000 deliveries and 71.8% of cases were partial mole and peak age of mothers with molar pregnancy was 17.5 years (7). In this study, only 14.8% of mothers with molar pregnancy were under 20 and perhaps this is related to the small number of women under 20 years of age in this research. Only 16.3% of molar pregnancies were partial. In this study, the incidence of complete mole was 0.7% and incomplete mole was 0.11% among all pregnancies. In some studies, incidence of complete mole was more than partial (6, 20-22). In Nigeria, the ratio of complete to partial mole was reported to be 1 (23), but in another study in Nigeria, the rate of molar pregnancy was 3.8 per 1000 live births and partial mole was 71.8% of molar pregnancies (7). In a study to determine the incidence of HM, for the period between the years 2000-2009 in UK, the incidence of molar pregnancy was 1 per 591 viable pregnancies and the incidence increased from 1 per 611 in 1997 to 1 per 528 viable pregnancies in 2008. The risk of HM was higher in young teenagers and women more than 40 years old (13).

History of OCP intake and previous mole or miscarriage increases the chance for HM (2). In this study, the history of these risk factors resulted in significant difference between molar and non-molar pregnancies.

In this study, there was no significant difference for blood types between molar and non-molar pregnancies.

Conclusion

The frequency of HM in different countries shows a dramatic difference which depends on multiple factors that should be evaluated locally. The frequency of HM in Asia is more than European and American statistics (17), but in this study it was not so high as 5-15 times. Its frequency in European and American statistics is 2 per 1000 pregnancies but in population of this study, it was 7 in 1000 pregnancies.

Acknowledgement

This study was funded by the Iran University of Medical Sciences (IUMS).

Conflict of Interest

The authors do not have any conflict of interest.

References

1. Drake RD, Rao GG, McIntire DD, Miller DS, Schorge JO. Gestational trophoblastic disease among Hispanic women: a 21-year hospital-based study. Gynecol Oncol. 2006;103(1):81-6.
2. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY, editors. Williams Obstetrics. 23rd ed. Gestational Trophoblastic Disease. USA: McGraw-Hill; 2010. 257 p.
3. Schorge JO, Goldstein DP, Bernstein MR, Berkowitz RS. Recent advances in gestational trophoblastic disease. J Reprod Med. 2000;45(9):692-700.
4. Berkowitz RS, Goldstein DP, editors. Gestational Trophoblastic Disease. New Delhi: Wolters Kluwer Health-Lippincott Williams and Wilkins; 2012. 1458 p. (Jonathan S. Berek, editor. Berek and Novak's Gynaecology).
5. Nizam K, Haider G, Memon N, Haider A. Gestational trophoblastic disease: experience at Nawabshah Hospital. J Ayub Med Coll Abbottabad. 2009; 21(1):94-7.
6. Mourali M, Fkih C, Essoussi-Chikhaoui J, Ben Haj Hassine A, Binous N, Ben Zineb N, et al. Gestational trophoblastic disease in Tunisia. Tunis Med. 2008;86(7):665-9.
7. Audu BM, Takai IU, Chama CM, Bukar M, Kyari O. Hydatidiform mole as seen in a university teaching hospital: a 10-year review. J Obstet Gynaecol. 2009;29(4):322-5.
8. Boufettal H, Coullin P, Mahdaoui S, Noun M, Hermas S, Samouh N. [Complete hydatiforme mole in Morocco: epidemiological and clinical study]. J Gynecol Obstet Biol Reprod (Paris). 2011;40(5): 419-29. French.
9. Thapa K, Shrestha M, Sharma S, Pandey S. Trend of complete hydatidiform mole. JNMA J Nepal Med Assoc. 2010;49(177):10-3.
10. Soares PD, Maestá I, Costa OL, Charry RC, Dias A, Rudge MV. Geographical distribution and demographic characteristics of gestational trophoblastic disease. J Reprod Med. 2010;55(7-8):305-10.
11. Loukovaara M, Pukkala E, Lehtovirta P, Leminen A. Epidemiology of hydatidiform mole in Finland,

1975 to 2001. Eur J Gynaecol Oncol. 2005;26(2): 207-8.

12. Salehi S, Eloranta S, Johansson AL, Bergström M, Lambe M. Reporting and incidence trends of hydatidiform mole in Sweden 1973-2004. Acta Oncol. 2011;50(3):367-72.
13. Savage P, Williams J, Wong SL, Short D, Casalboni S, Catalano K, et al. The demographics of molar pregnancies in England and Wales from 2000-2009. J Reprod Med. 2010;55(7-8):341-5.
14. 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):172-5.
15. Matsui H, Kihara M, Yamazawa K, Mitsuhashi A, Seki K, Sekiya S. Recent changes of the incidence of complete and partial mole in Chiba prefecture. Gynecol Obstet Invest. 2007;63(1):7-10.
16. Altieri A, Franceschi S, Ferlay J, Smith J, La Vecchia C. Epidemiology and aetiology of gestational trophoblastic diseases. Lancet Oncol. 2003;4(11): 670-8.
17. Li AJ, editor. Gestational trophoblastic neoplasms. USA: Lippincott Williams and Wilkins; 2008. 1073 p. (Gibbs RS, Karlan BY, Haney A, Nygaard I, editors. Danforth's Obstetrics and Gynecology; vol. 63.).
18. Kim SJ, Lee C, Kwon SY, Na YJ, Oh YK, Kim CJ. Studying changes in the incidence, diagnosis and management of GTD: the South Korean model. J Reprod Med. 2004;49(8):643-54.
19. Shi YF, Li JQ, Zheng W, Chen XJ, Qiao YH, Hao M, et al. [Survey of gestational trophoblastic disease incidence among 3.6 million pregnancies in China]. Zhonghua Fu Chan Ke Za Zhi. 2005;40 (2):76-8. Chinese.
20. Chechia A, Koubaa A, Makhlouf T, Anis B, Terras K, Hamouda B, et al. [Molar pregnancy. Retrospective study of 60 cases in Tunisia]. Tunis Med. 2001;79(8-9):441-6. French.
21. Harma M, Harma M, Yurtseven S, Gungen N. Gestational trophoblastic disease in Sanliurfa, southeast Anatolia, Turkey. Eur J Gynaecol Oncol. 2005;26(3):306-8.
22. Soper JT. Gestational trophoblastic disease. Obstet Gynecol. 2006;108(1):176-87.
23. Osamor JO, Oluwasola AO, Adewole IF. A clinic - pathological study of complete and partial hydatidiform moles in a Nigerian population. J Obstet Gynaecol. 2002;22(4):423-5.