

Prevalence and clinical observations of Gestational Trophoblastic Diseases in Maternity Teaching Hospital in Erbil City

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Abstract: - Gestational Trophoblastic Diseases (GTDs) are uncommon chorionic tumor of the placenta. It includes a spectrum of diseases from the usually benign hydatidiform mole to the highly malignant choriocarcinoma. A descriptive observational study carried out on 40 cases with GTDs to determine the rate, epidemiological correlates, clinical behavior, and common complications of the disease.

The study done on pregnant women admitted to Maternity teaching hospital, Erbil city, North of Iraq, Kurdistan region during the period from 1st October 2008 to the 1st of April 2009. Demographic data were collected from each patient, history of prior molar pregnancy, socioeconomic state, presenting signs and symptoms, complete examination and investigation done for all of them, elevated level of Human chorionic gonadotrophin hormone was used to diagnose the condition also ultrasonography with a special findings to GTDs done for every patient. The incidence of GTD was 1 in every 318 pregnant women. The highest incidence was in 40 years old women and more. The mean age of the study sample was 27.97 ± 8.66 years, sixty two percent of cases were in the age group of 20-39 years, the mean gestational age was 11 ± 3.7 weeks, 65% of cases were presented in the first trimester, while 35% of cases were in second trimester. 82.5% of cases were complete mole, 10% were partial mole, and 7.5% were gestational trophoblastic neoplasm. Majority of cases (87.5%) presented with vaginal bleeding, pregnancy induced hypertension and preeclampsia was the presentation in 15% of cases, 67.5% had abdominal cramps, 50% presented with signs of dehydration due to hyperemesis gravidarum, 25% had hyperthyroidism, there was a statistically significant association between hyperemesis gravidarum and hyperthyroidism. Theca lutein cysts presented in 25% of the cases. The uterine fundal level was larger than the gestational age in 45% of the cases. There was a statistically significant association between the Gestational Trophoblastic Neoplasia and the presence of theca lutein cysts and history of molar pregnancy in the antecedent pregnancy but there was no significant association between the gestational trophoblastic neoplasia and the age groups. Ultrasound was diagnostic in 38 cases (95%), while histopathological examination was diagnostic in 100% of the cases.

Complications of the GTD; such as infections, trophoblastic embolism, and uterine perforation were not found in the current study.

The incidence of GTDs in Maternity teaching hospital (1 in 318) is comparable to the incidence in some Middle East and Far Eastern countries.

Key-words: - Gestational trophoblastic diseases, Hydatidiform mole, Gestational trophoblastic neoplasia, Invasive mole, Choriocarcinoma.

1 Introduction:

The term Gestational Trophoblastic Diseases (GTD), describes a group of inter-related diseases, including complete and partial molar pregnancy, choriocarcinoma and placental site trophoblastic tumor which vary in their potency for local invasion and metastasis. Although persistent GTD follow molar pregnancy, it may follow any type of gestation, including term pregnancy, abortion and ectopic pregnancy⁽¹⁾.

A study in Finland done by Loukovaara et al (2001) revealed that, broad variations in the incidence of gestational trophoblastic diseases have been reported in different parts of the world. Recent time trends in the incidence of hydatidiform mole in western countries have not been elucidated. Also reported that the incidence of hydatidiform mole were as follow: in North America and Europe was 1:500 to 1:2000 pregnancies, Asia and Latin America were 1:200 to 1:400 pregnancies, and Philippines was 1:250⁽²⁾.

The study of pathologic material from first- and second- trimester abortions established a frequency of complete and partial hydatidiform moles in Ireland of 1 per 1945 pregnancies and 1 per 695 pregnancies, respectively⁽³⁾. The incidence of GTDs appears to be about 1 per 1000 pregnancies in most parts of the world and perhaps twice as high in Japan. Choriocarcinoma is much less common, and estimates of the incidence are highly variable. Maternal age and history of hydatidiform mole have been established as strong risk factors for both hydatidiform mole and choriocarcinoma. The evidence for a role of other factors, including diet, ethnicity, endogenous estrogen level, ABO blood group and environmental toxins, is weaker⁽⁴⁾. The role of high parity in the GTDs is unclear⁽⁵⁾, some authors said that the parity dose not affect the risk of GTDs⁽⁶⁾, other authors said that women with no previous pregnancies may have a higher risk than those who have had many⁽¹⁾. Others said that the incidence of hydatidiform mole and its

complications was higher in patients over 40 years of age and of parity three and more⁽⁷⁾.

The clinical presentation of molar pregnancy has changed appreciably during the past 20 years. The availability of ultrasonography and quantitative measurement of hCG levels now allows earlier diagnosis. Symptoms are more likely to be dramatic with complete mole than with a partial mole⁽⁶⁾.

The early stages of a pregnancy in which a GTD develops typically seem normal, then symptoms of the pregnancy are exaggerated for example the uterus may grow more rapidly than usual. The first obvious symptom is vaginal bleeding and lower abdominal cramps. The blood may contain hydatid vesicles; hyperemesis is possible, and signs and symptoms of preeclampsia are also possible. Other complications of GTD may include anemia, infection, trophoblastic embolism, uterine perforation, and choriocarcinoma⁽³⁾.

In many cases of hydatidiform mole the ovary contains multiple theca-lutein cysts. These may vary from microscopic size to 6cm or more in diameter, their surfaces are smooth, often yellowish, and lined with lutein cells. The incidence of obvious cysts in association with a mole is reported to be from 25 to 60 percent. They thought to result from over stimulation of lutein element by large amount of hCG secreted from proliferating trophoblastic cells⁽⁸⁾.

Gestational trophoblastic Neoplasm (GTN) also called malignant gestational trophoblastic diseases; this term refers to invasive mole, choriocarcinoma, and placental site trophoblastic tumor. Any of these may follow molar pregnancy or normal pregnancy, or develop after abortive outcomes, including ectopic pregnancy. Malignant transformation of hydatidiform mole to choriocarcinoma occurred in 10-20 % of cases⁽²⁾.

GTN almost always develops with or follows some form of pregnancy. Approximately half of cases follow a hydatidiform mole, 25 percent follow an abortion, and 25 percent develop after an apparently normal pregnancy⁽⁹⁾.

Choriocarcinoma is extremely malignant form of gestational trophoblastic neoplasia, may be considered carcinoma of the chorionic epithelium. In its growth and metastasis, however, it often behaves like a sarcoma. The characteristic gross picture is that of a rapidly growing mass invading both myometrium and blood vessels that causes hemorrhage and necrosis⁽¹⁰⁾. The distinguishing features of invasive mole are excessive trophoblastic overgrowth and extensive penetration by the trophoblastic cells, including whole villi. These structures penetrate into the depths of the myometrium, some times to involve the peritoneum, adjacent parametrium, or vaginal vault. Such moles are locally invasive, but lack the pronounced tendency to widespread metastasis⁽¹¹⁾. Placental site trophoblastic tumor is trophoblastic neoplasia arises from the placental implantation site following a normal term pregnancy, spontaneous or induced abortion, ectopic pregnancy or molar pregnancy⁽¹²⁾. The most common finding in GTN is irregular vaginal bleeding associated with uterine subinvolution. The bleeding may be continuous or intermittent, with sudden and some time massive hemorrhage Uterine perforation caused by invasive trophoblastic growth may cause interperitoneal hemorrhage, in some cases, women present with metastatic lesion of the vulva and vagina⁽³⁾.

Ultrasonography is the criterion standard for identifying both complete and partial molar Pregnancies. The classic image, using older ultrasonographic technology, is of snowstorm pattern representing the hydropic chorionic villi. High resolution ultrasonography shows a complex intrauterine mass containing many small cysts⁽¹³⁾

Beta HCG is a glycosylated heterodimer protein produced predominantly by syncytiotrophoblast cells; consist of the alpha and beta units held together non-covalently. The alfa sub unit is similar to those of other pituitary glycoprotein hormones, but beta subunit is specific to hCG alone⁽¹⁾. With available intrauterine pregnancy, β hCG levels are found in least 66% in 48 hours. Excessively

high serum β hCG levels are found with GTDs (20 times the normal values)⁽⁴⁾.

Recognition of possibility of GTN is the most important factor in diagnosis. Any case of unusual bleeding after term pregnancy or abortion should be investigated by curettage, and especially with measurement of hCG. Solitary or multiple nodules seen in the chest radiograph are suggestive of choriochoriocarcinoma. Persistent or rising hCG levels in the absence of pregnancy also are indicative of GTN⁽³⁾

Quantitative β -hCG levels greater than 100,000 mIU/ml indicate exuberant trophoblastic growth and raise suspicion for a molar pregnancy, although levels with partial mole are only infrequently above the range of normal pregnancy⁽¹³⁾.

In Erbil city, little is known about the pattern of the GTD as a whole or its relation to the age groups and other different variables. As a result this study was carried out to throw a light on the pattern of this group of diseases in a sample of pregnant women who were admitted to the Maternal Teaching Hospital in Erbil city. This study is going to be a base for further studies in a wider level covering the entire Kurdistan region.

2 Objectives:

The aims of the study were to identify:

- (1) The rate of the disease among pregnant women admitted to the Maternity Teaching Hospital in Erbil city during the study period.
- (2) The presenting signs and symptoms of the disease and common complications.
- (3) The probable associated factors.

3 Patients and Methods:

A descriptive observational study on cases of GTDs among pregnant women admitted to Maternity Teaching Hospital in Erbil city was conducted during the period from 1st Oct 2008 to the 1st of April 2009.

Erbil governorate is located in Kurdistan region in northern part of Iraq; bounded by Turkey and part of Duhok governorate at the north, Kirkuk governorate at the south, Iran and parts of Sulaimania governorate at the East, and Ninevah governorate in the West. Erbil city is located about 350 Km north of Baghdad⁽¹⁴⁾. The population of Erbil governorate was estimated to be 1,438,482 in 2006.

This study was carried out in the Maternity Teaching Hospital inside Erbil City. Maternity Teaching Hospital is the only maternity hospital in Erbil city.

Cases of GTD among pregnant women admitted to the Maternity Teaching Hospital who were referred to the hospital from private clinics or Antenatal Care Centers, and other cases diagnosed in the hospital were interviewed by the investigator. All patients gave a verbal consent; the study was approved by the scientific committee in the hospital. A specially designed questionnaire form was filled for each patient by direct Interview. The data requested includes demographic character, age, last menstrual cycle, parity, socioeconomic state, obstetrics and gynaecological history, history of prior molar pregnancy, antecedent pregnancy, and clinical features like miss periods, vaginal bleeding, abdominal pain, passage of villi vaginally, headache, tremor, palpitation, anxiety, sweating(symptoms of hyperthyroidism), excessive vomiting and inability to drink or eat any substance to the degree of dehydration(symptoms of hyperemesis gravidarum). Then complete medical and gynaecological examination of the patient was done including abdominal examination for fundal height, palpation for the presence of Lutein cysts abdominally, chest examination, blood pressure and pulse rate, vaginal examination was done to assess the uterine size, vaginal bleeding, presence of villi. Complete investigations were done for each patient, such as complete blood picture, blood group and Rh for patient and her husband, ketone bodies and albumin in urine (for cases with hyperemesis gravidarum and preeclampsia), estimation of T3, T4, TSH, and hCG level, pelvic and abdominal ultrasound examination, chest X ray, and histopathological examination for all the products of conception was done after evacuation of the uterus with suction curettage.

Statistical software was used for data entry and analysis, namely SPSS version 13, aided by Excel.

Two approaches were used; descriptive such as frequencies, minimum and maximum values, percents, mean, S.D) was done for some variables. While in the second approach, Chi-Square test was used for testing association between different variables. P value ≤ 0.05 was considered as statistically significant⁽¹⁵⁾.

4 Results:

During the period of the study (6 months), 12557 pregnant women were admitted to the Maternity Teaching Hospital. The total number of GTD cases were (40), frequency rate of the GTD was 1 in every 314 pregnant women admitted to Maternity Teaching Hospital.

From the total (12557) pregnant women which admitted to the Maternity Teaching Hospital, 1382 pregnant women (11%) were at the age group of less than 20 years, 10321 pregnant women (82.2%) were at the age group of the 20-39 years and 854 pregnant women (6.8%) were above 40 year

The frequency rate for each age group is illustrated in the Table 1, the highest frequency rate was at the age group of 40 years and above (1 case / 122 pregnant women), the second one at the age group of less than 20 years (1 case/ 172 pregnant women), While the lowest frequency rate was at age group of 20-39years (1 case/413 pregnant women)

Table (1): The incidence of GTD according to age group

Age group(years)	No. of cases	No. of pregnant women	Incidence rate
Less than 20	8	1382	1/172
20-39	25	10321	1/413
40+	7	854	1/122
Total	40	12557	1/318

The mean age of the study group was 27.97±8.66 years, ranging from 16-50 years, with the mode of 25 years of age. 20% of cases were less than 20 years, more than half of cases (62.5%)

were at age group 20-39 years, 17.5% of cases were above 40 years, as shown in Fig.1

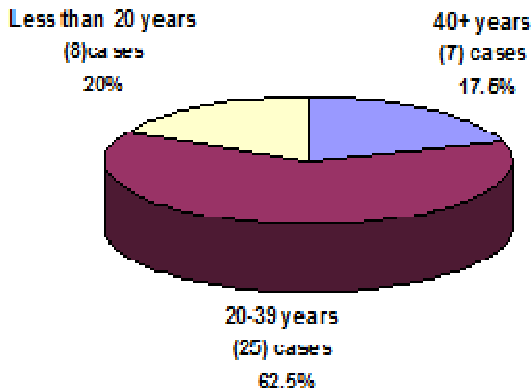


Fig. 1: Distribution of cases according to age group

Table 2, reveals the distribution of cases according to parity, the mean parity of the sample size was 2.8 ± 2.9 , ranging from 0 to 10, with the mode of (1) parity, frequency of 10. There was a highly significant association between parity and GTD (P value = 0.005). Twenty one cases (52.5%) had parity of (1-4), 10 cases (25%) were of parity ≥ 5 , while only 9 cases (22.5%) were primigravida.

Table 2: Distribution of cases according to parity.

Parity	No. of cases	Percentages	P Value
Primigravida	9	22.5	0.005
P1-4	21	52.5	
P ≥ 5	10	25	
Total	40	100	

Twenty six cases (65%) were of low socioeconomic status, while 14 cases (35%) of high socioeconomic state.

Table 3: Distribution of cases according to socioeconomic state.

Socioeconomic state	No. of cases	Percentage
High socioeconomic	14	35
Low socioeconomic	26	65
Total	40	100

The mean gestational age was 11 ± 3.7 , ranging from 6-23 weeks. The mode was 8 weeks of gestation with frequency of 8. The GTD was most commonly (65% of cases) diagnosed at the first trimester while 35% of cases were diagnosed at second trimester (Table 3)

Table 4: Distribution of cases according to gestational age

Gestational age	Frequency	Percentage
1 st trimester	26	65%
2 nd trimester	14	35%
Total	40	100%

From 40 cases of GTD; thirty three cases (82.5%) were complete molar pregnancy, four cases (10%) were partial hydatidiform mole, and the remaining 3 cases (7.5%) were gestational Trophoblastic neoplasm (GTN), as shown in Fig. 2

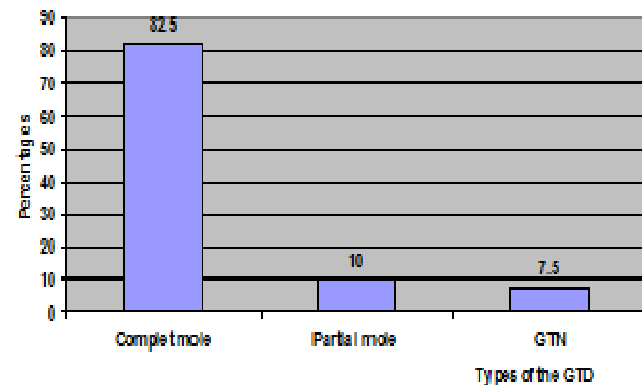


Fig. 2: Distribution of cases according to types of GTD

Majority of the cases (87.5%), presented with vaginal bleeding, 52.5% were spotty vaginal bleeding, while 35% presented with hemorrhagic bleeding. Twenty seven cases (67.5%) presented with abdominal cramps, 20 patients diagnosed with signs of dehydration due to hyperemesis gravidarum. 10 cases presented with marked elevation of T_3 and T_4 hormones (hyperthyroidism). Pregnancy induced hypertension (PIH) occurred in 5 cases (12.5%), with one case (7.5%) of Preeclampsia (Hypertension+ protein urea) as shown in Table 4.

There was a statistically significant association between hyperthyroidism and hyperemesis gravidarum as illustrated in Table 5.

Table 4: Distribution of the clinical features of the sample cases.

Symptoms	No. Of cases	Percentages
Vaginal bleeding	35	87.5
Anemia	27	67.5
Abdominal cramps	27	67.5
Hyperemesis	20	50
Hyperthyroidism	10	25
PIH+Preeclampsia	6	15
Passage of villi	3	7.5

Table 5: Association between hyperthyroidism and hyperemesis
P value= 0.003

Hyperemesis		Hyperthyroidism		Total
		Yes	No	
Hyperemesis	Yes	10	10	20
	No	0	20	20
Total		10	30	40

Regarding the uterine size; 45% of the cases presented with uterine size larger than the estimated gestational age, 40% of the cases their uterine size were the same as the expected gestational age, while the remainder cases (15%), their uterine size were smaller the gestational age (Table 5).

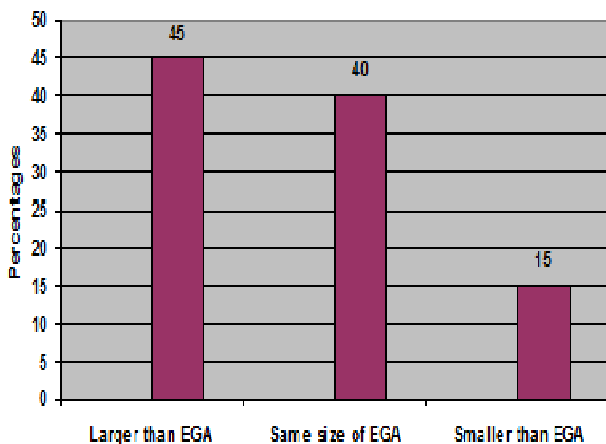


Fig. 3: Uterine size according to fundal height

Three cases (7.5%) out of 40 had gestational Trophoblastic Neoplasia (GTN), two cases diagnosed as choriocarcinoma, and one case as invasive mole (the diagnosis was confirmed by histopathological examination).

Regarding the antecedent pregnancy in the cases of GTD, only 4 cases (10% of the cases) have had prior molar pregnancy; from these 4 cases of prior molar pregnancy two had GTN, with a highly significant association between them ($X^2=11.7$, $P=0.001$), as shown in Table 6.

Table 6: Association between the GTN and antecedent molar pregnancy

		GTN		Total
		Yes	No	
Prior molar pregnancy	Yes	2	2	4
	No	1	35	36
Total		3	37	40

Table 7: reveals the association between the age groups and the cases GTN, 2/3 of the cases of GTN were above the age of 40 years.

GTN		Age groups		40 and over
		10-19	10-19	
GTN	Yes	0	1	2
	No	8	24	5
Total		40	25	7

Ten cases (25%) out of 40 had Theca lutein cyst, all the cases of GTN had theca lutein cyst giving a significant association between the GTN and the presence of theca lutein cyst (P value =0.002).

Table 8: Association between GTN and Theca Lutein cyst

GTN		Theca Lutein cyst		Total	P value
		Yes	Yes		
GTN	Yes	3	0	3	0.002
	No	7	30	37	
Total		10	30	40	

The level of β hCG in all cases of GTN and complete molar pregnancies was more than 10000mIU/ml, while in cases of partial mole; the β hCG level was less than 2000mIU/ml (Table 7). Ultrasound was diagnostic in 38 cases (95%), while histopathological examination was diagnostic in 100% of the cases.

Complications of GTDs; such as infection, trophoblastic embolism, and uterine perforation were not found in the current study.

Table (10): Level of the β hCG according to the types of GTD

Type of GTD	Level of the B-hCG
Partial HM	Less than 2000mIU/ml
Complete HM	More than 10000 mIU /ml
GTN	More than 10000 mIU/ml

5 Discussions:

When a patient presents with symptoms of pregnancy in an exaggerated form specially hyperemesis gravidarum, the clinician should be alerted to the diagnosis of GTDs. However, due to the frequent use of ultrasonic scan, the diagnosis of GTDs is now made early in pregnancy. If GTDs is suspected on clinical grounds, ultrasonic scanning and quantitative estimation of serum β hCG should be carried out to confirm the diagnosis.

The incidence of GTD had two extremities; the highest one reported from in 1 in 100 pregnancies in Indonesia to 1 in 200 pregnancies in Mexico, and 1 in 250 in Philippines, the lowest one in North America and Europe was 1:500 to 1:2000 pregnancies in Paraguay⁽⁴⁾.

The incidence of GTDs In the current study (1/318 pregnancies) was between these two extremities; that comparable to the incidence in some Middle East and some Far Eastern countries.

In a study done in Iran the by Javey and Sajadi 2002, the incidence of the disease was found to be 1/314pregnancies⁽¹⁶⁾ ,In a study done in Saudi Arabia by Al- Mulhim (2000) the incidence of GTDs was 1/452 deliveries which was coincide with the result of the current study⁽¹⁷⁾

Regarding the frequency rate in each age groups; the results of current study were coincide with

other abroad studies such as: a study done in the state of Victoria/ Australia by Beischer et al (2005) revealed that the incidence of GTDs and its complications was higher in patients over 40 years of age⁽⁷⁾. A study done in Saudi Arabia by Chattopadhyay et al (2000) revealed that the youngest (less than 20 years of age) and the oldest (more than 40 years of age) had significantly higher than expected incidence⁽¹⁸⁾. Another study done in USA by Hayash et al (2003) The distribution of GTDs by maternal age showed the highest rate among women 40 years and older, and the second highest rate among women aged 15-19 year⁽¹⁹⁾.

The current results were also coinciding with the results of a study done in Mexico by Moore EL (2008), where the GTDs were more common at the extremes of reproductive age. Women in their early teenage or perimenopausal years are most at risk, women older than 35 years have a 2-fold increase in risk, women older than 40 years experience a 5- to 10-fold increase in risk compared to younger women⁽²⁰⁾.

Regarding the distribution of the GTDs in each age group; in the current study the age distribution of GTDs was as follow: 20% were at the age group of less than 20 years, more than half of cases 62.5% were at age group of 20-39 years (in their second and third decades of life, the period of maximum fertility), and 17.5% were at age group of above 40 years, these results were coincide with three other studies: the first one done in Iran by Shamshiri-Milani (2008) which revealed that 76.6% of GTD cases were at age group of 20-39 years and 23.3% in the age group of below 20 years⁽²¹⁾. Second study was done in Egypt by Kasr EL Ainy Center of Clinical Oncology- NEMROCK (2001), which revealed that 80% of GTD cases were at age group of 20-39 years, 16% at age group of below 20 years and 4% at the age group of above 40 years⁽²²⁾. The third study was done in Malaysia by Aye and Karali (2009), which revealed that 78.5% of HM at the age group of 20-40, 15.5% at the age group of below 20 years, the remaining (5.8%) was for above 40 years⁽²³⁾.

In the current study the mean parity of the GTD was 2.8 ± 2.9 , ranging from 0 to 10; which coincide with the results of the a study done in Saudi Arabia by Al-Mulhim (2000) which reported that the parity of the patients ranged from 0 to 9 with a mean of 3.1⁽¹⁷⁾.

The GTDs rate was low in nulliparous as compared to the parous patients; while in a study done in

Mexico by Moore (2008) revealed that the parity does not affect the risk of the GTDs; though it is more common below 20 years and above 35 years⁽²⁰⁾.

Sixty five percent of cases of GTDs were of low socioeconomic state while 35% of the cases were of high socioeconomic status. Nutritional and socioeconomic factors appear to be important risk factors for molar pregnancy in some populations⁽¹⁹⁾. In a study done in Saudi Arabia by Felemban et al (2006) revealed that; the mean gestational age at molar evacuation was 13.3 weeks, and 54.4% of patients were diagnosed in the first trimester⁽²⁴⁾; which coincide with the results of the current study where the mean gestational age was 11 ± 3.5 weeks, ranging from 6-23 weeks, and 65% was diagnosed at first trimester.

In a study done in Malaysia by Aye and Karali (2009), revealed that 75% of cases of GTDs were diagnosed at first trimester⁽²³⁾, which means that their facility for early detection and diagnosis of GTDs were better.

Vaginal bleeding remained the most common presenting symptom, occurring in 87.5% of cases which coincide with a study done in USA by Soto-Wright et al (2001) who revealed that 84% of cases presented with vaginal bleeding⁽²⁵⁾, another study done in Singapore by Chong and Koh (2003) revealed that the vaginal bleeding was the main presenting complaint in 89.3% of cases⁽²⁶⁾. A retrospective study done by Coukos et al (2003), also revealed that 75% of patients presented with abnormal vaginal bleeding⁽⁷⁾.

Hyperemesis gravidarum was one of the presenting symptoms in 50% of the current study cases, while in the study done in Saudi Arabia by Felemban et al (2006) reported that the hyperemesis gravidarum was occurred in 29% of cases⁽²⁴⁾, and occurred in 8% in a study done in USA by Soto-Wright et al⁽²⁵⁾, these differences could be due to the difference in the frequency rate of GTDs between these two hospitals and early diagnosis and management of the disease before causing sever dehydration due to hyperemesis gravidarum.

Pregnancy induced hypertension occurred in 12.5% of cases in the current study, this finding is the same as the result of the Saudi Arabia, in a study done by Al- Mulhim (2000), who reported 12% of the cases with GTD presented with Pregnancy induced hypertension⁽¹⁷⁾.

There was 2.5% of cases with pre-eclampsia which coincide with the a study done in USA by Soto-

Wright et al (2001) who revealed that 1.3% GTDs cases were presented with pre-eclampsia⁽²⁵⁾, and in a study done in Saudi Arabia by Felemban et al (2006) reported only one case out of 71 cases (1.4%) presented with pre-eclampsia. The possible explanation for the differing incidence of pre-eclampsia in different studies could be related to the timing of the diagnosis of molar pregnancy; Molar pregnancy is diagnosed and managed earlier now because of the routine use of ultrasonic scanning in all pregnant patients⁽²⁴⁾.

In an old study done in Malaysia hospitals by Ong et al (1978) revealed that the percentage of patients presented with pre- eclampsia was 23.5% (24 cases in 102 patients), 87.5% of them was of more than 20 weeks of gestational age, while 12.5% of them was between 16-20 weeks⁽²⁶⁾. The reason of this high percentage of the pre-eclampsia means that; the diagnosis of the GTDs was delayed at that time due to lack of facility in comparison with the early diagnosis of GTD in last two decades.

In the current study the anemic cases were 67.5% which is not in compatible with the results of a study done in Saudi Arabia done by Felemban et al⁽²⁴⁾ (2006) who reported 15.5%, and a study done in USA by Soto-Wright et al (2001) revealed that, anemia was a presenting symptom in (5%) of the cases⁽²⁵⁾. This gap between these studies may be due to the geographical location of the sample and the socioeconomic status of the cases.

Twenty five percent of the current study patients presented with elevated T3, T4 hormones, which was not coincide with the results of the other studies done in Saudi Arabia by Felemban et al (2006), who reported only 3.3%, and with the results of the study done in USA; which reported that hyperthyroidism occurs in less than 10% of women with GTDs⁽²⁴⁾, these difference could be explained only by the fact of unknown aetiology of the disease and why it is different in frequency rate between different countries? and what factors cause it and makes this feature more in our locality rather than the other countries.

Current study findings were compatible to some extent with the results of a study done in Saudi Arabia by Al Mulhim, where the uterine enlargement was beyond that expected for the gestational age in 62% of cases, uterine size was smaller for dates in 13.3% of cases while 26.6% of cases, the uterine size were compatible with the expected gestational age⁽¹⁷⁾.

The rate of theca lutein cyst in the current study result was 25%, which coincide with the results of the study done in Malaysia by Aye S and Karali HF (2009), who reported that ovarian enlargement occurred in 20% of the cases⁽²³⁾. Also with the study done in USA by Montz et al (2003) who reported (26.4%) with mean size of ovarian enlargement of 7.3 cm (range of 3-20 cm)⁽⁸⁾, and also coincide with the result of the studies done by Cabill (2005), which reported the incidence of obvious cysts in association with a mole is reported to be from 25 to 60 percent⁽⁴⁾.

Three cases (7.5%) out of 40 cases had GTN, two cases were diagnosed as choriocarcinoma 5%, and one was diagnosed as invasive mole 2.5%, which was close to the result of a study done in Saudi Arabia done by Al- Mulhim (2000) reported GTN was 10%, invasive mole (6.7%), choriocarcinoma (3.3%)⁽¹⁷⁾.

Regarding the age group and incidence of the GTN, the current finding shows that 2/3 of them were above the age of the 40 years, which coincide with a study done in Saudi Arabia by Chattopadhyay et al (2000) revealed that malignant GTNs was higher than expected frequency for the older age group only (more than 40 years of age)⁽¹⁸⁾.

A study in Finland done by Loukovaara et al (2001) revealed that, 49% of choriocarcinomas identified during the study period were associated with a preceding hydatidiform mole, which coincide with the current study finding (66.3% cases of GTN had prior molar pregnancy)⁽²⁾.

All the three cases of Gestational trophoblastic neoplasia had theca lutein cysts, Montz et al (2003) reported, the gestational trophoblastic neoplasia was more likely in women with theca lutein cysts, especially if bilateral. However theca lutein cysts are not limited to cases of hydatidiform mole and may associated with fetal hydrops and placenta hypertrophy or with multifetal pregnancy. They may undergo torsion, infarction, and haemorrhage. Because the cysts regress after delivery, oophorectomy should not be performing unless the ovary is extensively infarcted⁽⁸⁾.

Due to early diagnosis of the GTDs (by ultrasound and serum hCG level) and early management with uterine evacuation under general anesthesia and methotrexate to cases of GTN, there was no any complication of GTDs reported in our study.

Rising β hCG levels above 10000 mIU in the absence of fetus were indicative of complete mole

and GTN in all cases of the current study, which coincide with the most of the other studies done in abroad.

6 Conclusions:

- 1) The incidence of GTDs in Maternity teaching hospital is 1/318 pregnancies.
- 2) Highest incidence rate was at the age group 40 and above and age group less than 20 years.
- 3) The most common presentations were abnormal vaginal bleeding in early pregnancy, hyperemesis gravidarum, uterine size being larger than the dates and the presence of hyperthyroidism.
- 4) 7.5% of cases were malignant gestational trophoblastic condition.
- 5) Complications of GTDs such as infections, trophoblastic invasion and uterine Perforation was not found in current study.

7 Recommendations:

- 1) The results of this study can be used by local authorities as the basis for guiding, directing, and planning program for early detection of the risk factors of GTDs.
- 2) Trying to educate pregnant women in Antenatal care units about the early signs and Symptoms of GTDs and the hazards that may be faced in the future.
- 3) Establishment of a specialized center in the maternity Teaching Hospital for diagnosis, management and follow up of GTDs cases.
- 4) Providing the laboratory of the Maternity Teaching Hospital by new and advanced equipments and facilities for enhancement of the earlier detection and appropriate management.
- 5) Create initiatives to stimulate research and further studies on GTDs in Erbil governorate and Kurdistan region; regarding incidence of GTNs, detecting risk factors, proper management, and complications.

8 References:

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