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ESTIMATION OF CHEMOTHERAPY EFFECT ON B-hCG LEVEL IN MOLAR PREGNANCY

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ABSTRACT
Molar pregnancy etiology, biology and responsiveness to treatment are very different from those of any other form of malignancy. Fortunately, the majority of cases can be cured by simple surgical intervention and those that require chemotherapy are generally cured with very low toxicity treatment, this study include 33 patients with age 15-47 (26.27± 10.39) diagnosed with complete hydatidiform mole. Serum β-hCG level evaluated pre and post evacuation and during chemotherapy courses (methotrexate/ folinic acid), results showed significant differences in β-hCG level between chemotherapy courses and pre/post evacuation.

KEYWORDS: Malignancy, surgical intervention, hydatidiform mole, β-hCG level, chemotherapy.

INTRODUCTION

Hydatidiform mole is the result of abnormal gametogenisis and fertilization, characterised histologically by abnormalities of the chorionic villi that consist of trophoblastic proliferation and oedema of villous stroma[1]. Hydatidiform moles come in 2 forms: complete moles and partial moles. The complete hydatidiform mole is usually diploid and entirely androgenetic in origin. Most have 46, XX karyotype; a few have a 46, XY karyotype. A complete molar pregnancy consists of diffuse hydropic chorionic villi with trophoblastic hyperplasia, forming a mass of multiple vesicles. There is usually no evidence of a fetus and minimal embryonal development. The partial hydatidiform mole is usually triploid, with one maternal and two paternal haploid sets, either from dispermic fertilization or from fertilization with an unreduced diploid sperm. There is usually a fetus and a large placenta. The hydropic villi show a less florid appearance than is seen with a complete hydatidiform mole and are interspersed with normal chorionic villi. The fetus usually dies within a few weeks of conception, and a recent review did not identify any case in which a fetus of paternal (diandric) origin survived to term[2]. Very rarely, a partial molar pregnancy develops with two maternal and one paternal haploid set (digynic). In these cases, the placenta is small, the villi show minimal hydropic changes, and the fetus is growth-restricted. Some of these pregnancies have been reported to result in live births, with subsequent early neonatal death[3]. Diagnosis of hydatidiform mole include: History, Clinical examination, Ultrasonic examination, preferably with vaginal color Doppler flow ultrasound, Radiologic examination by MRI or CT scan is indicated only when ultrasonic examination is inconclusive, and serum β-hCG levels. The hydatidiform mole is surgically evacuated as soon as possible after diagnosis. The patient should be followed by weekly β-hCG measurements until hCG becomes undetectable[4]. Human chorionic gonadotropin (hCG) is a glycoprotein hormone produced by trophoblastic tissue and therefore is a key marker in pregnancy and gestational trophoblastic disease (GTD)[5].

METHODS

Blood specimens collected in the medical city, Baghdad teaching hospital. After collection, blood samples were centrifuged and serum was kept at -20 ^{o} C until assayed. A group of 33 patients with complete moles included in this study. Serum samples were assayed using specific radio immune assays for β-hCG. We excluded all patients with a histological diagnosis of choriocarcinoma.

RESULTS

Table 1 and figure1 shows the significant difference ($p<0.05$) in β-hCG levels pre and post evacuation and during chemotherapy courses (methotrexate/ folinic acid).

TABLE 1: The mean of serum β-human chorionic gonadotrophin (HCG) before and during chemotherapy

Groups / Parameter	Pre evacuation N=33	Post evacuation N=33	1st course of treatment N=33	3rd course of treatment N=33	6th course of treatment N=33	P
BhCG IU/l	43791.70 ± 5473.3	11686.39 ± 1152.1 A	5471.70 ± 571.01 A	571.88 ± 75.02 A	4.88 ± 2.3 A	**≤.05**

A= significant difference from preevacuation group

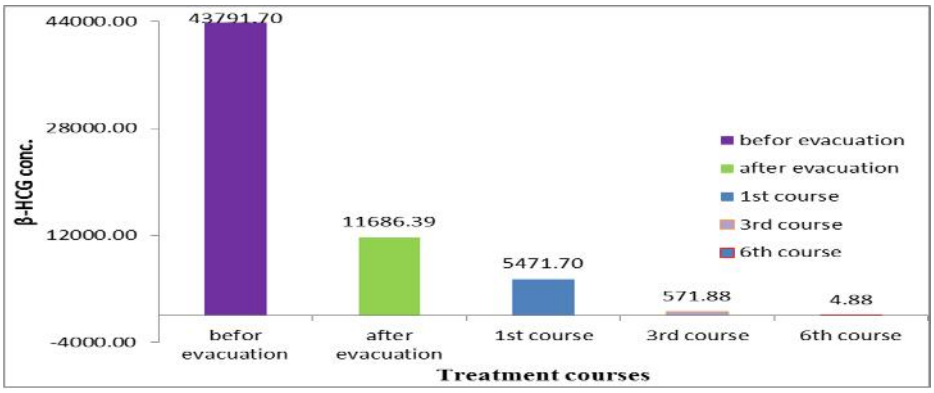

FIGURE 1. The changes of serum β-human chorionic gonadotrophin (HCG) before and during chemotherapy

DISCUSSION

The initial gynaecological management of molar pregnancy is by uterine evacuation. Suspected complete molar pregnancies should be removed by suction evacuation, while suspected partial molar pregnancies should generally be removed via medical termination, as the fetal parts can present an obstacle to suction evacuation. Usually, evacuation is straightforward; however, haemorrhage is a potential risk and oxytocic infusions can be of value, preferably after the completion of the evacuation[6]. The evacuation specimen from women with suspected molar pregnancy should always be sent for histological analysis[7]. Typically, in a complete molar pregnancy the pathology shows hydropic villi with trophoblastic hyperplasia, while in partial molar pregnancy it frequently shows only focal changes and it is usually far less florid than a complete mole[8]. Trophoblast cells constitutively make hCG, which is readily measured by immunoassay. After evacuation, in the majority of cases the residual trophoblast cells are unable to continue to proliferate for long and the fall in serum hCG levels is a very accurate indication of their declining activity. In most cases, after evacuation of a molar pregnancy the hCG level falls to normal (<5 IU/l) within 2–3 months, after which relapse of the molar pregnancy is extremely rare. In approximately 15% of cases of complete molar pregnancies and 0.5% of cases of partial molar pregnancies, the abnormal trophoblast cells continue to proliferate and invade into the uterine wall; they can then metastasise to other organs, particularly the lungs. This development of invasive behaviour is believed to be linked to abnormal patterns of gene silencing and expression in trophoblast cells[9]. The majority of women with persistent trophoblast disease after a molar pregnancy will fall into the low-risk treatment group and start chemotherapy with intramuscular methotrexate combined with oral folinic acid. The low-risk methotrexate treatment is usually well tolerated without major toxicity. Methotrexate does not cause hair loss or significant nausea and bone marrow suppression is rare. The most common side effects are pleural inflammation, mucositis and hepatic toxicity but each of these is relatively rare[10]. All women have their hCG levels checked twice a week while undergoing treatment and, following hCG normalization, chemotherapy is continued for another three cycles (over 6 weeks) to ensure eradication of any residual disease present below the level of hCG detection. Overall, two-thirds of the low-risk group will successfully complete treatment with methotrexate alone.

CONCLUSION

Hydatidiform mole is among the rare human tumors that can be cured even in the presence of widespread metastases. The key-role in obtaining a high cure rate becomes an early diagnosis and the subsequent strictly follow-up.

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