HYPERTHYROIDISM DUE TO HCG OCCURS IN 2% OF CASES OF GESTATIONAL TROPHOBLASTIC DISEASE

Walkington L, Webster J, Hancock BW, Everard J, Coleman RE. **Hyperthyroidism and human chorionic gonadotrophin production in gestational trophoblastic disease.** Br J Cancer 2011;104:1665-9. Epub April 26, 2011.

SUMMARY

BACKGROUND

Gestational trophoblastic disease (GTD) occurs in 1.5 in 1000 pregnancies in the United Kingdom, with the most common expression being the hydatidiform mole. The malignant form, choriocarcinoma, occurs in 1 in 70,000 pregnancies. In the United Kingdom, all of these patients are cared for in specialized centers. Some patients with GTD have hyperthyroidism because they secrete very large amounts of human chorionic gonadotropin (hCG), which can stimulate the thyrotropin (TSH) receptor and cause hyperthyroidism. The purpose of the present study was to review the thyroid function of patients at the Sheffield Trophoblastic Disease Centre in recent years.

METHODS AND RESULTS

During the 5-year period ending January 2010, a total of 196 patients with GTD were treated with chemotherapy at this center. Only 14 (7%) were found to have biochemical hyperthyroidism, and 4 of these patients had clinical hyperthyroidism. Three of the 4 had hCG levels in excess of 1000 U/ml at presentation. These 4 patients are described in detail; 3 had lung metastases and 1 had congestive heart failure. Each was treated with carbimazole and chemotherapy for metastatic choriocarcinoma. Thyroid function normalized as serum hCG levels fell. All of these patients were in remission and euthyroid after chemotherapy.

CONCLUSIONS

Because concomitant biochemical thyroid disease in patients with GTD is relatively common, it is important to assess their thyroid function. The development of hyperthyroidism is largely influenced by the level of hCG and disease burden, and it usually improves with treatment of the persistent GTD. However, in rare cases, the hyperthyroidism can have potentially life-threatening consequences.

COMMENTARY

Because of the common use of ultrasound for following pregnancy, hydatidiform moles are now detected much earlier, when the tumors are smaller and hCG concentrations are not so dramatically elevated. Nevertheless, individual cases of molar pregnancy with hyperthyroidism continue to be reported (1). Centers that specialize in chemotherapy for choriocarcinoma accumulate significant numbers of cases of this rare entity; in the current report, only 4 of 196 (2%) of the patients had significant clinical hyperthyroidism. As has been described in other reports, successful chemotherapy reduces serum hCG levels and cures the hyperthyroidism (2). There are abundant data showing that hCG is a weak thyroid stimulator and binds to the TSH receptor (summarized in reference 3). There are data that indicate that the hCG secreted in GTD is more potent as a TSH than hCG secreted in normal pregnancy (4). This may be attributed to altered glycosylation of the molecule; hCG extracted from hydatidiform moles has reduced sialic acid content and is a more potent thyroid stimulator than normal hCG (5).

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