ß-hCG Immunreactivity in Human Cervical Carcinoma

SERVİKS KANSERİNDE p-hCG İMMÜNREAKTİVİTESfl

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SUMMARY

Cervical carcinoma was invesitgated for immunoreactivity of p-hCG. 25 patients with cervical cancer in various stages were examined from this point of view. In this preliminary report the overall immunoreactivity of p-hCG was found to be 40 per cent. The values found were between 2 and 50 mill/ml and there was no significant correlation between age and the p-hCG values (r-0.3113, p>0.05). Additionally, results from the patients undergoing various treatment modalities were not differ from each other significantly (X²~1.3972, 0.3>0.3>p>0.2).

Key Words: Cervical carcinoma, p-hCG immunoreactivity

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ÖZET

Serviks karsinomunun, p-hCG immünreaktivitesi araştırılmıştır. Yapılan bu ön çalışmada değişik evrelerde 25 serviks kanserli hasta bu açıdan incelenmiştir. Tüm gruptaki p-hCG immünreaktivitesi %40 olarak bulunmuştur. Serum değerleri 2 ile 50 mlU/ml arasında dağlım göstermiştir. Yaş ve p-hCG seviyeleri arasında belirgin bir korelasyon kurulamamıştır (r=0.3113, p>0.05). Ayrıca değişik tedavi şekilleri uygulanan hasta grupları arasında anlamlı bir fark gözlenememiştir (X²=1.3972, 0.3>p>0.2).

Anahtar Kelimeler: Serviks kanseri p-hCG immünreaktivitesi

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Human chrorionic gonadotropin (hCG) may be secreted by several tumors ectopically. The Incidence of ectopic hCG secretion ranges between 17 and 56 per cent among these tumors (1,2,3). hCG is composed of two noncovalently linked subunits designated a and *p.* Low concentrations of a hCG like substance have been reported in all tumors described (4). However other investigators have not confirmed these observations. Ectopic productions of plasental proteins by human cancer are of particular interest because of the similarities between neoplastic and embryonic cells. In this preliminary report, we demonstrate that immunoreactive *p* hCG are secreted by the patients with cervical carcinoma.

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MATERIALS AND METHODS

Patients

A total of 25 patients with cervical carcinoma were studied. Cervical carcinoma was staged according to the classification recommended by the International Federation of Gynecology and Obstetrics (FIGO). Serum samples were taken during the treatment in all cases. Samples were obtained from 7 patients within the first week of radical surgery and from 18 patients during radio-and/or chemotherapy.

hCG assay

We used "Amerlex-M Beta hCG RIA kit" (Amersham) for hCG *p* subunit. Serum specimens were stored at —20°C. Before performing the assay all specimens were mixed thorougly until they reached the room temperature. Radloimmunassays for p-hCG were performed by the double antibody procedure (5,6). The method depends on competition between hCG In the sample and ^{125}I-labeled hCG present, antibody bound hCG is reactid with the Amerlex-M second antibody reagent which contains second antibody that is bound

to magnetic polymer particles. According to this kit values 10 mlU/ml were accepted positive.

We performed regression analysis in order to find any relation between the age of the patient and the assays. Also Chi-square test (Fourfold table-Yates correction) was performed to show the significance of the therapy.

RESULTS

The distribution of values according to the stages of cervical carcinoma were expressed graphically (Figure 1). The elevated serum p hCG concentrations varied between 2 and 50 mill/ml second International standart (2 nd IS). 40 per cent of the patients shower immunoreactivity in the overall group. There was no significant correlation between the ages of the patients and the p-hCG values (r-0.3113, p>0.05). When the results are examined, there is also no significant change on (3-hCG secretion whether the disease has been cured or not (Table 1).

DISCUSSION

Ectopic production of hCG is not uncommon (1,7,8,9) and small amounts of free hCG p subunit may be found in the serum of patients with some non-trophoblastlc tumors. This report documents the example In vivo of ectopic production of free p subunit of chorionic gonadotropin.

All human tissues appear to make hCG as a whole molecule, but placenta is different in having the ability to glycosylate the protein thus reducing its rate of metabolism and giving it biological activity through a long half life (10). In addition, cell lines derived from non-trophoblastic tumors also produce hCG, a-hCG, p-hCG (5,6,11,12).

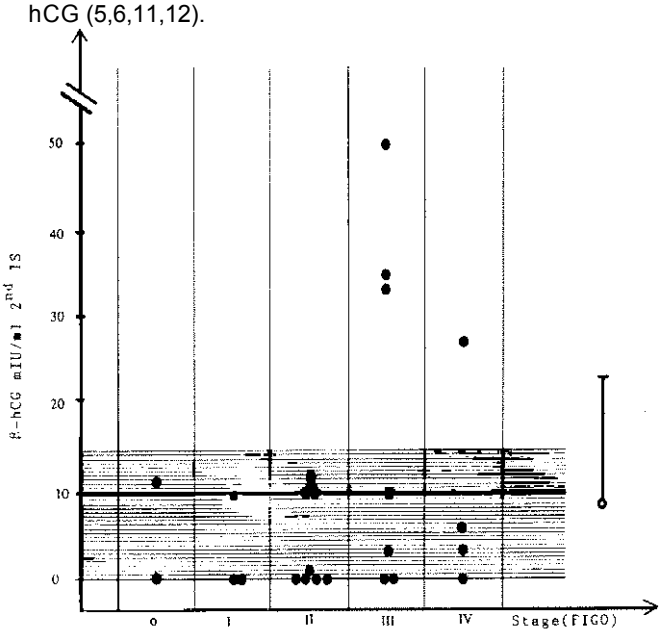

Figure 1. Distribution of β-hCG according to the stages of cervical carcinoma.

Table 1. Results of the patients undergoing various treatment modalities

ß-hCG Therapy	n b-hCG >10mlU/ml	ß-hCG < mlU/ml	Total
Surgical therapy	2	5	7
Radio-and/or Chemotherapy	8	10	18
Total	10	15	25

X^2 - 1.3972, 0.3>p>0.2

HCG is one of the embryonic gene products appearing in ontogeny. The finding of circulating hCG in association with malignant neoplasms has been regarded generally as another expression of embryonic antigens in cancer. The origin of this hCG activity is not known. Among unselected patients with various neoplasms it was found that hCG positive patients were older than hCG negative patients (8). But in our study, we found no significant correlation between the age and the p hCG values of the patients (r=0.3131, p>0.05). Even though the patients who had surgical therapy do not show any trace of cancer, the hCG values have been found positive in 28.6% of the patients. Similarly, 44.4% of the patients who had radio-and/or chemotherapy and who showed no clinical symptoms had positive hCG values.

CONCLUSION

Patients with tumors which secrete gonadotropins ectopically are not recognized by clinical syndromes attributed to excessive gonadotropin secretion because resulting gonadotropin excess usually is not manifested clinically. In conclusion we can say that the frequency and types of tumors associated with hCG production are greater than previously appreaciated. While very low levels occur in cervical carcinoma utilizing the hCG p subunit for monitoring the course of the disease does not seem promising.

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