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RADIOIMMUNODETECTION OF THYROID CARCINOMA USING ANTITHYROGLOBULIN ANTIBODY (ANTI-TgAb).

H.Hirayu, M.Izumi, K.Oota, S.Yamashita, K.Sato, S.Morita, S.Nagataki. The First Department of Medicine, Nagasaki University, School of Medicine

We reported the basic and clinical studies of radioimmunodetection of thyroid carcinoma using radioiodinated anti-TgAb in the last meeting. The distribution of radioiodinated anti-TgAb in the tumor and the specificity of the accumulation of anti-TgAb by tumor is reported here. Anti-TgAb was obtained from serum of a patient with Hashimoto's disease and purified by gel filtration and affinity chromatography. Radioiodination of anti-TgAb was carried out by lactoperoxidase and glucose-glucose oxidase system. The tissues of normal thyroid, Graves', thyroid adenoma and carcinoma were transplanted into nude mice. One month after transplantation the radioiodinated anti-TgAb was injected intravenously into the nude mice. The nude mice were sacrificed 1 week after injection and the transplanted tissues were removed and homogenized. Each fraction of nucleus, mitochondria, microsome, and cytosol was separated by analytical ultracentrifugation and each fraction was counted for radioactivity. The immune complex of Tg and Tg-anti TgAb was studied using affinity chromatography. Control studies were carried out using radioiodinated normal human IgG instead of anti TgAb. The radioiodinated anti-TgAb was accumulated by only the tissues of adenoma and carcinoma not by normal and Graves' thyroid. The main radioactive materials accumulated were found in cytosol as immune complex of Tg and anti-TgAb. These results suggest that the secretions of Tg in normal subjects and patients with Graves' disease is different from those in patients with adenoma and carcinoma and that the radioimmunodetection of thyroid neoplasma is clinically useful.
