Glutathione S-transferase T1 and m1 polymorphisms and risk of thyroid neoplasms

KEYWORDS: Thyroid Neoplasms; Glutathione Transferase; Genotype; Genetic Predisposition to Disease

Background: In order to test the possibility of association between GSTT1 and M1 (glutathione S-transferase) null allele variant, in which the entire gene is absent, and the risk of TCO (thyroid carcinoma with cell oxyphilia), the case-control study was carried out. Methods: Genotypes for GSTT1 and GSTM1 were determined by multiplex PCR in the DNA from 108 healthy individuals and in DNA from samples of thyroid tumors from 130 patients of the same race and origin as the control group (Caucasian, Italian). The following types of NMTC were analyzed: oxyphilic adenoma (OA), oxyphilic carcinoma (OC), papillary thyroid carcinoma with oxyphilic features (PTCof), follicular adenoma (FA), follicular carcinoma (FC), follicular variant of PTC (fPTC), and classical PTC. Associations between prevalence of particular genotypes and the occurrence of TCO (versus controls) and other subtypes of NMTC were tested. Associations were quantified by calculating OR (odds ratio) with 95% confidence interval. StatGraphics Plus v. 5 software (Manugistics) was used for statistical analysis. Results: In this study of the association between the GSTT1 and M1 null genotype and the increased risk of TCO, the frequency of GSTT1 null genotype of 19.2% in cases and 15.7% in controls was found, with an adjusted odds ratio (OR) of 1.4 (95% confidence interval CI, 0.70-2.81), and the frequency of GSTM1 null genotype of 59% in cases with oxyphilic tumors and of 55.6% in controls (OR 1.24; 95% CI, 0.62-2.48). Conclusion: These results indicate that the GSTT1 and M1 null genotypes do not increase the risk of development of oxyphilic tumors, as well as other types of NMTC that have been included in this study.

Differentiated thyroid carcinomas and regional metastases

KEYWORDS: Thyroid Neoplasms; Carcinoma, Papillary, Follicular; Lymphatic Metastasis

Background: Aim of the study was to determine the frequency of regional - nodal metastases (N1) of differentiated thyroid carcinomas (DTC), to analyze the modes of treatment, course of disease, and outcome. Methods: In Department of Nuclear Medicine in Sremska Kamenica, 363 DTC patients were treated from 1977 to the end of 2000. Nodal metastases had 182 patients; most of them were followed to the end of 2000. Methods: All patients with N1 were treated surgically (operation of thyroid gland was done in all patients, surgical treatment of lymph nodes in 80.2% of them), afterwards by radioiodine and long-life by hormonal therapy; external beam therapy was applied in 9.9% of patients, chemotherapy in 1.6% of patients. The range of follow-up was from 2 months to 24.2 years, the mean 4.7 years. Results: Nodal metastases were detected first, before primary tumor, in 21.9% patients, and simultaneously in 63.2% patients. They appeared subsequently, after detection and initial treatment of primary tumor in 14.8% patients; the incomplete initial therapy in this subgroup of patients was more frequent than complete therapy (p<0.01). Regional metastases N1b were present more frequently than N1a (p<0.001). Distant metastases (M1) in N1 group were discovered in 27.5% of patients; they were more frequent than in N0 group of patients (p<0.001). Nodal metastases were found more frequently in the group of papillary than in the group of follicular carcinoma (p<0.001), and in the men than in the women with DTC (p<0.001). Remission was achieved in 67.7% of patients with N1. Disease related deaths occurred in 15.8% of patients with N1; M1 was cause of deaths in 10.2% of patients, locoregional disease (T4 and/or N1) in 5.9% of patients, and M1+extended T4 and/or N1 in 0.7% of patients. Late complications of treatment caused the death in 2.1% of patients with N1. The relapses of disease occurred in 31.9% of patients. The survival probability after onset of the nodal disease in N1MO subgroup was 0.88+/-0.05 after 10 years, and 0.64+/-0.16 after 20 years; the probability of survival was very significantly shorter when M1 were present (p<0.001). Conclusion: Regional metastases were detected in the half of DTC patients. The detection of N1 was the first indicator of thyroid tumor in about 20% of them. Nodal metastases grew later on after detection and initial treatment of primary tumor in about 15% of patients, mostly as a result of inadequate treatment. The frequency of N1 was greater in patients with papillary type of tumor and in males. The presence of M1 had significant influence on survival of patients with N1.