ASSOCIATION OF SERUM CALCITONIN LEVELS WITH MULTINODULAR THYROID DISEASE: 10-YEAR SINGLE CENTER EXPERIENCE

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Background. From 2005 to 2015 routine calcitonin (CT) screening was performed in our department in all patients with multinodular goiter (MNG) using the same assay.

Aim — we investigated possible associations between unstimulated serum CT levels and the presence of either thyroid autoimmunity (AITD) or thyroid neoplasia.

Material and methods. This is a retrospective study of 648 patients (559 female [F] 86.3%, 89 male [M] 13.7%, age range 18—89, median 58 years.). CT ≤4.6 pg/ml [F] and ≤11.5 pg/ml [M] was defined as normal. Patients were stratified into 4 groups according to CT. Group1: CT<0.05 (undetectable), Group 2: CT [F&M] within normal range, Group3: CT:4.7—10 [F] & 11.6—20 [M], Group4: CT>10 [F] & >20 [M]. Furthermore patients were subcategorized in those with Autoimmune Thyroid Disease (AITD) and those without (non-AITD).

Results. The distribution of patients was: Group1: n=186 (28.7%), Group2: n=422 (65.1%), Group3: n=29 (4.5%), Group4: n=11 (1.7%). Of the patients with AITD history 23.4% belonged to Group 1, 68.6% to Group 2, 6.4% to Group 3 and 1.6% to Group 4 (x2; p=0.037). Forty seven (7.3%) patients underwent total thyroidectomy. Histopathological examination revealed: Medullary Thyroid Carcinoma (MTC) n=3 (3/3 Group 4), C-Cell Hyperplasia (CCH) n=5 (3/5 Group 3, 2/5 Group 4), Papillary Thyroid Carcinoma (PTC) n=17 (7/17 Group 1, 10/17 Group 2, MN) n=22 (8/22 Group 1, 10/22 Group 2, 2/22 Group 3, 2/22 Group 4). 2/5 patients with CCH had PTC. 1/17 PTC patient had mixed PTC-MTC. Patients with MTC had remarkably higher CT levels (253—1222 pg/ml) compared to those with CCH (5.8—16.1 pg/ml).

Conclusions. This study reaffirms the positive correlation between CT levels and the presence of MTC or CCH, clearly and conspicuously distinguished by the range of CT levels, albeit in a small number of patients with these diagnoses. Patients with AITD have more frequently detectable or slightly increased CT levels.

KEYWORDS

Thyroid, multinodular goiter, autoimmune thyroiditis, calcitonin, medullary thyroid cancer.