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Nodular Thyroid Disease in Functional Pituitary Adenomas: Similarities and Differences

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Abstract

Purpose: Increased frequency of nodular thyroid disease (NTD) is reported in acromegalic patients. Recent studies also demonstrated an increased coexistence of NTD with Cushing's disease (CD) and prolactinoma. In this study, we evaluated the frequency and outcomes of NTD in functional pituitary adenoma (FPA) patients.

Material and Methods: A total of 232 (138 F/94 M) patients with a diagnosis of acromegaly (n=138), prolactinoma (n=59) and CD (n=35) were included in this retrospective observational study. Frequency of NTD, fine-needle aspiration (FNA) results, frequency of papillary thyroid carcinoma (PTC) are compared in each group. Factors related with NTD development are evaluated in FPA patients with and without nodule.

Results: NTD frequency was higher in acromegaly (69%) compared to prolactinoma (36%) and CD (34%) ($p<0.001$). FNA results and PTC frequencies were similar between groups. In comparison to patients without nodule (n=104), patients with nodules (n=128) were older ($p=0.01$) and glucose metabolism disorders were more common ($p=0.006$). IGF-1 levels were higher in acromegalic patients with NTD ($p=0.01$). There was no relationship between nodule formation and baseline prolactin, cortisol/ACTH levels in prolactinomas and CD, respectively.

Conclusion: NTD was more common in acromegalic patients, however in both frequencies of prolactinoma and CD were higher than previously reported in our country (24% for <65 years). Most important factors playing role in nodule formation were glucose metabolism disorders and age in all FPA patients. Although frequency of increased PTC in acromegalic patients has been reported, the frequency of PTC in our series was similar for each FPA with nodule.

Keywords: Acromegaly, prolactinoma, Cushing's disease, thyroid nodule, papillary thyroid carcinoma

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