The significance of FDG uptake in bilateral thyroid glands

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摘要

Abstract

AIM: To evaluate the significance of bilateral fluorodeoxyglucose (FDG) uptake in the thyroid glands. METHODS: Bilateral thyroid FDG uptake, defined as visualization of thyroid glands, was found in 66 (3.4%) of 1925 subjects who underwent our FDG PET cancer-screening program. Additionally, 16 of the 41 patients with Graves' disease and hyperthyroidism (GD(H)) and six of the 20 subjects with Graves' disease and euthyroidism (GD(E)), who had FDG uptake in thyroid glands, were enrolled in this study. RESULTS: Among the 66 subjects, 22 were normal variant, 39 subjects had chronic thyroiditis (35 subjects presented with diffuse goitre and four with multinodular goitre), and five subjects had multinodular goitre (MNG) without chronic thyroiditis. Fourteen of 22 (63.6%) of the subjects with the normal variant had a visual uptake intensity less than that of the liver, while 30 of 39 (76.9%) of the subjects with chronic thyroiditis and 14 of 22 (63.6%) of the subjects with Graves' disease had visual uptake intensity greater than or equal to liver uptake. Two of the five subjects with MNG with focally intense uptake were proven to have thyroid carcinoma. Bilateral loser uptake in thyroids associated with thymus and symmetrical skeletal muscle uptake were found in GD(H). The standard uptake value (SUV) (mean+/-SD) in subjects with chronic thyroiditis (2.76+/-1.24) were higher, while those with GD(H) (1.59+/-0.36) were lower than that of the normal variant (1.99+/-0.63). Subjects with hypothyroidism (3.04+/-1.39) had higher SUV levels than those subjects with euthyroidism (2.44+/-1.11). In addition, patients with GD(H) had lower levels than those with GD(E) (2.0+/-0.38). CONCLUSION: (1) Bilateral thyroidal uptake of FDG can be found in normal variants and subjects with various thyroid disorders, showing varieties of uptake patterns. (2) Diffuse intense uptake and higher SUV levels are a clue to a diagnosis of chronic thyroiditis, especially for those with hypothyroidism. (3) Focally intense uptake suggests the possibility of a thyroid carcinoma. (4) Sparse uptake associated with the thymus and symmetrical skeletal muscle uptake and lower SUV level raise the possibility of Graves' disease with hyperthyroidism.