VALUE OF SPECT TO DETECT PARATHYROID ADENOMAS USING 99m-Tc MIBI

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The aim of ths study was to compare the sensitivity and diagnostic value of 3 methods to localise parathyroid adenoma using 99m-Tc-MIBI:

- Early and delayed planar 99m-Tc-MIBI washout.
- 99m-Tc-MIBI and 99m-Tc image subtraction.
- 99m-Tc-MIBI SPECT of the neck

42 patients with clinicaly proven hyperthyroidism were investigated. In all patients the investigations mentioned above were performed in a single day. The results were compared with surgical localisation of the parathyroid adenoma.

Sensitivity to detect parathyroid adenoma by usual 99m-Tc-MIBI/99m-Tc subtraction scintigraphy was 86%. Dual phase 99m-Tc MIBI showed sensitivity of 73% ($p < 0,05$). SPECT showed sensitivity of 88% (statistically nonsignificant difference vs. 99m-Tc-MIBI/99m-Tc subtraction scintigraphy), but several cases not seen by subtraction scintigraphy were positive on SPECT. Sensitivity of all 3 methods combined was 96%.

False positive results using all protocols were due mostly to thyroid nodules.

CONCLUSSION: The only way of treating hyperthyroidism is by removing the hypersecreting gland(s). Recently, less extensive surgery is advocated, using unilateral neck disection to remove only the abnormal gland. In this case it is absolutely mandatory to confirm that there is only one abnormal gland and to localise it prior to surgery. There are several methods of localizing abnormal parathyroids available with a wide variety of sensitivity of detection of the glands. Combination of one, probably 99m-Tc-MIBI/99m-Tc subtraction techniques with SPECT seems to give optimal sensitivity for the scintigraphic detection of parathyroid adenomas with no need for additional mediastinal image. Especially in areas with endemic goitre or in patients with nodular goitre US should also be performed and the 99m-Tc MIBI dual phase protocol (washout) could be useful to increase specificity of scintigraphic results.