Nuclear Medicine

Nürnberg

Value of Tc-99m-MIBI-SPECT and SPECT/CT-Fusion in Addition to Planar Tc-MIBI Scintigraphy in Hyperparathyroidism

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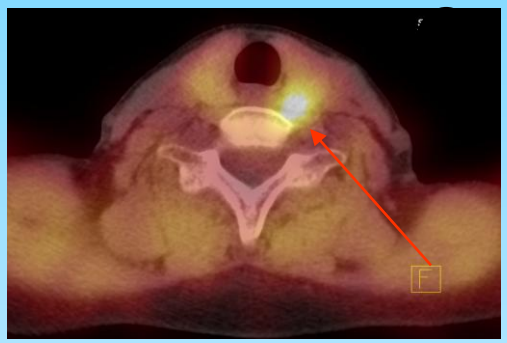
Aim:

To find out if single-photon emission computed tomography (SPECT) with CT-Fusion and (99m)Tc-methoxyisobutylisonitrile (MIBI) planar scintigraphy by Subtraction with Pertechnetat or Dual Phase Examinations can enhance the findings of parathyroid adenomas

Method:

Among the 47 consecutive patients who underwent planar (99m)Tc-MIBI scintigraphy for hyperparathyroidism (HPT), 45 underwent delayed SPECT and CT (Fusion works at Software Fa. Mediso). 37 pts. underwent additional (Tc-99m)-Pertechnetat-subtraction examination. Two independent experts scored the topographical localization, diagnostic confidence, and impact of each diagnostic modality on the therapeutically strategy. In all cases results was controlled with US.



SPECT/CT-Fusion by PTA

Results:

For adenomas ≥ 1 cm

(99m) planar Tc-MIBI scintigraphy in Dual Phase had a sensitivity of 88% with a positive predictive value (PPV) of 93%. SPECT and SPECT/CT Fusion did not affect the sensitivity or PPV, but it increased the diagnostic confidence in 55 % of the patients. (Tc-99m)Pertechnetat-subtraction increased the sensitivity only by multigotier Thyroid from 64% to 69%, but decreased the **PPV from 88% to 62%.**

In hyperplastic glands <1 cm

(99m)Tc-MIBI scintigraphy had a sensitivity of **65% and a PPV of 73%.** When (99m)Tc-MIBI scintigraphy was combined with SPECT/CT-Fusion and Subtraction, the results were 96%/92% and 69%/52%, respectively.

Conclusion:

Adding SPECT and SPECT/CT-Fusion to (99m)Tc-MIBI scintigraphy improved the finding of parathyroid adenomas in all cases. The addition of (Tc-99m)Pertechnetat-subtraction was of limited value. For all hyperplastic glands < 1cm we recommended SPECT/Ct-Fusion, however only this combination was effective.

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