Summary

Evaluation of Technetium-99m-MIBI Scintigraphy in Metastatic Differentiated Thyroid Cancer —Comparison Study with $^{131I}$ and $^{201Tl}$—


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Detectability of metastasis in differentiated thyroid cancer using technetium-99m-methoxyisobutyl isonitrile ($^{99mTc}$-MIBI) was compared with that of $^{131I}$ and $^{201Tl}$. Forty patients after total thyroidectomy were evaluated. The scan results were compared with those of $^{131I}$ and $^{201Tl}$ whole body scintigraphy per patient. The positive rate was 68% in $^{99mTc}$-MIBI, 84% in $^{131I}$, 60% in $^{201Tl}$ respectively. As to the lymph node metastasis, the positive rates were 56% in $^{99mTc}$-MIBI, 78% in $^{131I}$, 39% in $^{201Tl}$. In lung metastasis, the positive rate was 46% in $^{99mTc}$-MIBI, 82% in $^{131I}$ and 55% in $^{201Tl}$.

Serum thyroglobulin (Tg) was significantly higher in $^{201Tl}$ and/or $^{99mTc}$-MIBI positive group compared to that of negative group independent of $^{131I}$ scan results.

Although the detectability of both $^{99mTc}$-MIBI and $^{201Tl}$ were inferior to that of $^{131I}$, 9 to 22% of metastasis were detected only by these radiopharmaceuticals. Both $^{99mTc}$-MIBI and $^{201Tl}$, therefore, should be used in cases with high serum Tg even with negative $^{131I}$ uptake. Basing on the fact there was no prominent difference between $^{99mTc}$-MIBI and $^{201Tl}$ in the detectability of metastasis, $^{99mTc}$-MIBI might be more suitable tracer because of better quality image.

Key words: $^{99mTc}$-MIBI, $^{201Tl}$, $^{131I}$, Thyroid cancer metastasis.