ORIGINAL ARTICLE

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Technetium-99m MIBI single photon emission computed tomography as an indicator of prognosis for patients with lung cancer —Preliminaly report—

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Purpose: We performed technetium-99m hexakis-2-methoxyisobutylisonitrile (Tc-99m MIBI) single photon emission computed tomography (SPECT) in 23 patients with primary lung cancer between July 1993 and March 1996. We evaluated the relationships among the uptake ratio, retention index and the prognosis after radiation therapy and/or chemotherapy. ***Materials and Methods:*** Tc-99m MIBI SPECT was performed at 30 minutes and at 3 hours after intravenous injection of 600 MBq of Tc-99m MIBI with three gamma camera detectors (GCA-9300A/HG) on transverse SPECT images. Regions of interest were set in the area of abnormal uptake of Tc-99m MIBI and in the contralateral normal lung. The ratio of uptake in the lesion to that in the contralateral normal lung was obtained on early images (early ratio; ER) as well as delayed images (delayed ratio; DR). The retention index (RI) was calculated as follows: $RI = (DR - ER)/ER \times 100$. The ratio was compared with survival time and prognostic factors. ***Results:*** There was no correlation between ER and DR. The patients with high RI survived longer than those with low RI (median survival, 19.4 months vs. 9.4 months; $p = 0.0104$ by the Mantel-Cox test). ***Conclusion:*** These results suggest that RI is the most useful among Tc-99m MIBI indices of primary lung cancer in predicting prognosis.

Key words: technetium-99m-MIBI, lung cancer, prognosis, single photon emission computed tomography