

The role of ^{201}Tl scintigraphy in evaluating proliferative activity in thyroid neoplasms

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To identify the relationship between the uptake of ^{201}Tl and the proliferative activity in thyroid neoplasms, ^{201}Tl scintigraphy was performed in 57 patients with thyroid neoplasms. ^{201}Tl uptake ratio was calculated in both the early and the delayed images and then compared with factors representing cellular or practical proliferative activity of the lesions. The labeling index (LI) for proliferating cell nuclear antigen (PCNA) was determined quantitatively by flow cytometry. There was a significant correlation between the uptake ratio and LI for PCNA. The correlation coefficient for the delayed ratio (DR) vs. LI was better than that for the early ratio (ER) vs. LI. As parameters for practical proliferation, the surgical stage in primary thyroid carcinoma or ^{131}I uptake in recurrent thyroid carcinoma was focused on. DR was strongly related to these parameters, regardless of the histopathological features or size of the lesions. Our results suggest that ^{201}Tl uptake in delayed thyroid scan is useful in assessing proliferative activity in thyroid neoplasms.

Key words: cell cycle, proliferating cell nuclear antigen, flow cytometry, ^{201}Tl scintigraphy, thyroid neoplasm