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Patient age is significantly related to the progression of papillary microcarcinoma of the thyroid under observation.

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Background: We showed previously that subclinical low-risk papillary thyroid microcarcinoma (PMC) could be observed without immediate surgery. Patient age is an important prognostic factor of clinical papillary thyroid carcinoma (PTC). In this study, we investigated how patient age influences the observation of low-risk PMC.

Methods: Between 1993 and 2011, 1,235 patients with low-risk PMC chose observation without immediate surgery. They were followed periodically with ultrasound examinations. These patients were enrolled in this study. We divided them into three subsets based on age at the beginning of observation: young (< 40 years), middle-aged (40-59 years) and old patients (≥ 60 years). Observation periods ranged from 18 to 227 months (average 75 months).

Results: We set three parameters for the evaluation of PMC progression: 1) size enlargement, 2) novel appearance of lymph node metastasis, and 3) progression to clinical disease (tumor size reaching 12 mm or larger or novel appearance of nodal metastasis). The proportion of patients with PMC progression was lowest in the old patients and highest in the young patients. On multivariate analysis, young age was an independent predictor of PMC progression. However, none of the 1,235 patients showed distant metastasis or died of PTC during observation. Although only 51 patients (4%) underwent thyroid-stimulating hormone (TSH) suppression by physicians' preference, the PMC of all patients enrolled in this TSH suppression study, except one, were clinically stable. To date, 191 patients underwent surgery for various reasons after observation. None showed recurrence except for one in the residual thyroid, and none died of PTC after surgery.

Conclusion: Old patients with subclinical low-risk PMC may be the best candidates for observation. Although PMC in young patients may be more progressive than in older patients, it might not be too late to perform surgery after subclinical PMC has progressed to clinical disease, regardless of patient age.#