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Expression of cancer stem-like cell markers in papillary thyroid cancer: An immunohistochemical analysis

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Purpose: Cancer stem-like cell markers are reported to be related to the prognosis of various cancers. The aim of this study was to investigate the clinical significance of stem-like cell markers in papillary thyroid carcinoma (PTC).

Methods: We constructed tissue microarrays with 386 PTC cases. The expression of cancer stem-like cell markers was estimated using immunohistochemical (IHC) staining for CD24, CD15, CD166, CD44, and ALDH1A1. The scores of IHC staining were calculated by multiplying the proportion of stained cells and immunostaining intensity, and were defined as positive when the final score was >10. Associations between the expression of cancer stem-like cell markers and the clinicopathologic parameters were evaluated. Disease progression was defined as those experiencing recurrence or distant metastasis.

Results: Among the patients included, a total of 59 patients experienced recurrence or distant metastasis during the follow-up. The proportion of CD15, CD166, CD44, and ALDH1A1 expression was higher in PTC patients with disease progression than without ($p=0.014$, <0.001 , $=0.019$, and <0.001 , respectively). In multivariate Cox-proportional hazard analysis, CD15 positivity, CD166 positivity, and ALDH1A1 positivity were independent factors for shorter progression-free survival (odds ratio: 2.113, 7.413, and 2.574, 95% CI: 1.253-3.564, 4.296-12.791, and 1.014-6.360, $p=0.005$, <0.001 , and $=0.041$, respectively) along with the presence of lymph node metastasis.

Conclusion: Expression of cancer stem-like cell markers CD15, CD166, CD44, and ALDH1A1 in PTC was associated with shorter progression-free survival. These findings suggest that cancer stem-like cell markers might provide useful information in predicting patient prognosis in PTC.

Biography

Hye Min Kim has completed her residency in the Department of Pathology in Severance Hospital, Seoul, South Korea in 2016, and achieved a PhD degree at the age of 30 in Yonsei University College of Medicine. From the year of 2016, she is in a fellowship program in the department of Pathology of Severance Hospital.

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