

Receptor-Binding Cancer Antigen Expression in Thyroid Neoplasms: A Retrospective Study

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Abstract

Background: Receptor-binding cancer antigen (RCAS1) is a membrane protein, regarded as a tumor-associated antigen. Cancer cells evade immune response with RCAS1 up-regulation, inducing apoptosis to tumor infiltrating lymphocytes. Thyroid cancer incidence is rising and its accurate diagnosis in early stage is targeted. The aim of this study is to assess RCAS1 expression in benign and malignant thyroid pathology.

Methods: This is a retrospective study of 110 patients, who had thyroidectomy in a single tertiary referral centre between January 2008 until December 2014. Immunohistochemistry study for RCAS1 expression was carried out and correlation with clinical and histopathological data is attempted.

Results: RCAS1 immunostaining was found positive in 81 out of 110 cases. Notably it was deemed positive in all malignant thyroid tissue samples ($p < 0.001$). In thyroid malignancy, tumor size, thyroid capsule invasion and positive lymph nodes status were positively correlated with moderate and strong expression of RCAS1. For papillary thyroid carcinoma, the vast majority (35/37 cases, 94.6%) were also classified as having moderate or strong RCAS1 expression.

Conclusions: RCAS1 expression can aid in differential diagnosis between benign and malignant thyroid pathology, while its strong expression correlates with worse oncological features.

Key words: RCAS1, thyroid neoplasm, thyroid cancer, thyroid biomarkers