

Summary

The aim of the study was to evaluate the expression of galectin-3 (gal3), cytokeratin 19 (CK 19), neural cell adhesion molecule (NCAM), and E-cadherin (Ecad) in thyroid gland tumors, particularly their use in differential diagnosis of tumors with follicular growth pattern.

Indirect immunohistochemistry as a basic method was used. Evaluation included the proportion of positive tumor cells as well as the staining intensity. Finally, the histoscore values for each marker were calculated.

A series of 245 cases of primary epithelial thyroid gland tumors was studied, from 194 females and 51 males, mean patient age was 53 years. The mean tumor size was 26 mm. Extrathyroidal extension was detected in 27 and metastatic dissemination in 18/139 of malignant tumors, respectively. Angioinvasion was detected in 25/127 of malignant non-medullary tumors.

Gal3 expression was found in 37/106 of benign tumors (BTs) and in 114/139 of malignant tumors (MTs); CK 19 expression in 14/106 of BTs and in 83/139 of MTs; NCAM expression in 77/106 of BTs and in 59/139 of MTs; Ecad expression in 97/106 of BTs and in 100/139 of MTs, respectively.

The sensitivity and specificity of gal3 for malignancy were 0.719 and 0.802, of CK19 0.468 and 0.802, of NCAM 0.309 and 0.424, and of Ecad 0.453 and 0.170, respectively.

Statistically significant associations were found between extrathyroidal tumor extension and the gal3 expression and gal3 histoscore value; the CK 19 expression, CK 19 expression intensity and CK 19 histoscore value, and the Ecad histoscore value, respectively. Furthermore, there were statistically significant associations between the gal3 and CK 19 histoscore values and metastatic tumor spread.

There was a statistically significant difference of the expression, expression intensity and histoscore value of all the studied markers between the benign tumors versus the malignant tumors.

No statistically significant associations were found between the expression, the expression intensity and the histoscore values of all markers and the patients' gender and age, tumor size and angioinvasion, respectively.

No statistically significant difference of the expression, expression intensity and histoscore value of all the studied markers was found between follicular adenoma (FA) versus follicular carcinoma (FC). On the contrary, there were statistically significant differences of the expression, expression intensity and histoscore value of all the studied markers between the follicular variant of papillary carcinoma (PC-F) versus FA and FC. Furthermore, there was also a statistically significant difference of the CK 19 expression, CK 19 expression intensity and CK 19 histoscore value between the classical variant of papillary carcinoma versus PC-F and papillary microcarcinoma.

The best criteria for malignant tumor diagnosis appear to be the CK 19 histoscore value, gal3 histoscore value, Ecad histoscore value, and the patient's age, respectively. For differential diagnosis of PC-F versus FA and FC it is the gal3 histoscore value.

Therefore, the use of gal3 and CK 19 is helpful for differential diagnosis of PC-F versus FA and FC.