

Zaburzenia białek regulatorowych cyklu komórkowego: Rb, p21 i p16 w raku krtani

Alterations of cell cycle regulating proteins: Rb, p21 and p16 in laryngeal cancer

Wioletta Pietruszewska, Marcin Durko, Józef Kobos

Summary

In cell cycle, most of the regulatory actions occur at the so-called restriction point (R) in the late G1 phase. Tumor suppressor genes; Rb, p53 and p21 are among the most important of the agents suppressing transition through R point. Changes in the expression of Rb (retinoblastoma) gene correlate with the presence of Rb protein and they are believed to be an early event in carcinogenesis. This issue seems to be not plainly defined in laryngeal cancer. P21 with p16, cyclin D1 and Rb genes that play a critical role in the regulation of the G1-S transition of the cell cycle, are frequently altered in several neoplastic entities. Our purpose was to investigate the possible prognostic value of p21, p16 and Rb proteins in patients with laryngeal cancer. 67 patients with laryngeal cancer was multi-variously analysed. Paraffin-embedded tissue sections were immunohistochemically stained with a monoclonal antibody raised against p21, p16 and Rb proteins using standard immunohistochemistry techniques. Low intensity (S 10%, 7/67) of p21 protein expression was significantly correlated with histological grading ($p < 0,01$) and overall and disease free survival ($p < 0,05$). We did not observed any correlation between p21 expression and T, N and M status and local or nodal recurrences. Absence of p16 protein expression was observed in 35/67 (52,2%) cases and was significantly correlated with N status ($p = 0,03$) and nodal recurrences ($p = < 0,01$). By univariate analysis expression of p16 protein was related with quicker relapse. Rb protein was absent in 7/67 cases (10,4%) and was related to T3 and T4 primary tumour size ($p < 0,05$). We did not observed any correlation between Rb and other clinocopathological features ($p > 0,05$). Our study has identified p21 protein expression as important biological marker which may indicate the progression of laryngeal squamous cell carcinoma. P16 protein has a prognostic value in assessment of disease free survival. Based on this findings it can be deduced that investigation of Rb, p16 and p21 proteins makes it easier to understand the process of cancerogenesis in laryngeal cancer and to establish its prognostic value further research and observations need to be attempted.