Immunohistochemical evaluation of p21 and cyclin D1 expression in ameloblastoma of the jaws

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**Background and Aim:** The cell cycle is an important event in tumor growth and differentiation and several molecules are involved in this process. The aim of this study was to evaluate the expression of cyclin D1 (a cell cycle inducer) and p21 (a cell cycle inhibitor) in ameloblastoma.

**Materials and Methods:** In this cross-sectional study, 40 cases of ameloblastoma were selected from the archive of oral pathology department. 3 micron sections were cut from paraffin blocks and immunohistochemically stained with antibody against cyclin D1 and p21. Stained cells were counted using an eyepiece graticule and labeling index was calculated. Data were analyzed by SPSS version 11.5 for windows using Mann-Whitney and Wilcoxon signed rank tests with p<0.05 as the level of significance.

**Results:** Expression of cyclin D1 protein was detected in nuclei of many tumoral cells. The expression of cyclin D1 in solid and unicystic ameloblastoma and also between its follicular and plexiform variants was not statistically different (P>0.05). There was no statistically significant difference in expression of cyclin D1 between peripheral and central cells (P>0.05). Expression of p21 protein was detected in nuclei of some tumoral cells. There were no statistically significant differences between p21 expression in unicystic and solid ameloblastoma (P>0.05). P21 expression was statistically different between plexiform and follicular variants of ameloblastoma (P=0.049). The difference between p21 expression in peripheral cells of plexiform and follicular variants was statistically significant (P=0.009). This was not observed in central cells. There was no statistically significant relation between p21 and cyclin D1 expression in ameloblastoma (P>0.05).

**Conclusion:** Based on the results of this study, cyclin D1 expression in ameloblastoma is in high level and it could have an important role in the process of tumorigenesis. P21 expression in ameloblastoma is very faint and its possible effects need further investigation.

**Key Words:** Cyclin D1; p21; Ameloblastoma; Immunohistochemistry