

Notch4 overexpression in ameloblastoma correlates with the solid/multicystic phenotype

Type:

Article

Abstract:

Objective. Notch signaling has been implicated in cell fate decisions during odontogenesis and tumorigenesis of some odontogenic neoplasms; however, its role in solid/multicystic (SA), unicystic (UA), and recurrent (RA) ameloblastoma remains unclear. The aim of this study was to determine Notch receptor and ligand expressions in these subtypes and to speculate on their significance. Methods. Notch receptors (Notch1, 2, 3, 4) and ligands (Jagged1, 2, and Delta1) were examined immunohistochemically in SA (n = 23), UA (n = 22), and RA (n = 19). Results. Notch4 overexpression in SA (n = 19/23; 82.6%) compared with UA (n = 1/22; 4.5%) or RA (n = 10/19; 52.6%) (P < .05) suggests positive correlation between Notch4 signaling and ameloblastomas with a solid/multicystic phenotype. Ligand (Jagged1 and Delta1) underexpression compared with their receptors (Notch1, 3, 4) (P < .05) and nonreactivity for Notch2 and Jagged2 in all 3 subsets suggests that ameloblastoma epithelium belongs to an earlier stage of differentiation (equivalent to inner enamel epithelium of developing tooth germ) before lineage commitment. Conclusion. Present findings suggest that Notch signaling molecules may play differing roles in the acquisition of different ameloblastoma phenotypes. (Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2010; 110: 224-233)

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