Orthokeratinization-related factors in the oral dysplasia-squamous cell carcinoma sequences

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OBJECTIVE: Keratin (K) 10-positive (+) orthokeratotic epithelial dysplasia (OKD) of the oral mucosa is one of the background conditions of oral squamous cell carcinoma (SCC). We wanted to profile keratinization-related factors in those lesions to examine how the K10+ phenotype is processed during the oral cancinogenetic pathway.
STUDY DESIGN:We performed immunohistochemistry in surgical materials from oral dysplasia-carcinoma sequence lesions. Oral SCC cell lines were also investigated by immunofluorescence, western blotting, and PCR.

RESULTS: Immunohistochemically, in addition to K10, caspase-14 and filaggrin were strongly positive in OKD, while they were not in normal to dysplastic epithelia. In differentiated carcinoma in-situ and well-differentiated SCC, caspase-14 and filaggrin were positive in keratinized areas. Caspase-14 expressions in both mRNA and protein levels were confirmed in oral SCC cell lines such as ZK-2, HSC-2, and HSC-4.

CONCLUSIONS: Some molecular mechanism related to orthokeratinization could be involved in the sequential oral cancerization.