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Effects of Aging on Mouse Tongue Epithelium Focusing on Cell Proliferation Rate and Morphological Aspects

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Abstract: The aim of this study was to investigate cell proliferation rate and certain morphological features of mouse epithelium as aging progresses. Tongue biopsies were performed on female mice (*Mus domesticus domesticus*) at 2, 8, 14 and 20 months of age as indicative of adolescence, adulthood, early senescence and senescence, respectively. Histological sections of tongue were stained with hematoxylin-eosin and subjected to silver staining for active nucleolar organizer region counting. Cell proliferation rate and epithelial thickness analysis were carried out. Analysis of variance detected no differences between the groups in terms of numbers of silver-stained dots associated with nucleolar proteins. There was an increase in mean epithelial thickness in adult animals, followed by a gradual reduction until senescence. Mean keratin thickness presented an increase at 8 and 20 months of age. This difference is probably related to puberty, growth or dietary habits. Aging has no influence on oral epithelial proliferation rate in mice. A gradual reduction in epithelial thickness is a feature of aging in mammals. A conspicuous increase in the keratin layer was observed in senescence as an adaptative response to the reduction in epithelial thickness. These results suggest that aging affects the oral epithelium maturation process through a mechanism that is not related to cell proliferation.

Key words: Aging, Morphology, Proliferative activity, Silver staining, Tongue mucosa

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