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Tetracycline-tooth interaction: An elemental analysis from prenatal period to early childhood

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Abstract This study was performed to observe the dental hard tissue of newborn rats after their mothers were administered demethylchlortetracycline (DTC) during pregnancy. Undecalcified ground sections were observed by microradiography, and tetracycline-stained tooth was determined by ultraviolet light. The mineralization pattern and the element distribution in the enamel and dentin of the colored tooth were analyzed using an electron probe X-ray microanalyzer (XMA). Decalcified serial sections were stained with hematoxylin and eosin (HE). The results obtained showed that tetracycline caused abnormalities in the enamel and dentin formation. The longer period of tetracycline administration was tended to be associated with more pronounced coloration, and this was associated with the moderate alteration of calcification in some areas of the enamel and dentin, as observed on contact microradiograms (CMR). The Mg levels were higher, while those of P were lower for the DTC experimental groups than the control group. However, the Ca levels were comparable between the experimental and the control groups.

Key words Medication administered prenatally and postnatally, Rat, Tetracycline, X-ray microanalyzer

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