Changes in cell density and morphology of selected cells of the ageing human dental pulp

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Abstract

Objectives The aim of this study was to determine the changes in cell density and morphology of selected cells of the ageing human dental pulp.

Background Changes in cell density and morphology of dental pulp cells over time may affect their capability to respond to tooth injury.

Materials and methods One hundred thirty-one extracted teeth were obtained from individuals between the ages of 6 and 80 years. The apical 1/3 of the root region was removed from all teeth prior to routine processing for producing histological slides. The histology slides were used to study the changes in cell density and morphology of selected pulp cells; odontoblasts, subodontoblasts and fibroblasts in the crown and root regions of the dental pulp. Student's t-test and one-way anova were used for statistical analyses.

Results In all age groups, the cell density for all types of cells was found to be higher in the crown than in the root (p<0.05). In general, the pulp cell density was found to decrease with age in both the crown and root regions. However, it was noted that the reduction of coronal odontoblasts occurred later in life (40-49 years) when compared to that of subodontoblasts or fibroblasts (30-39 years).

Conclusions The density of the coronal pulp cells reduces and these cells undergo morphological changes with ageing of individuals and this may affect the pulp's ability to resist tooth injury.

Keywords

Author Keywords: histology; pulp; odontoblast; ageing

KeyWords Plus: AGE-RELATED-CHANGES; HUMAN TEETH; REPAIR; CARIES; ODONTOBLASTS; NUMBERS; DENTINOGENESIS; FIBROBLASTS; RESPONSES; INCISORS

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Funding

<table>
<thead>
<tr>
<th>Funding Agency</th>
<th>Grant Number</th>
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</thead>
<tbody>
<tr>
<td>Fundamental Research Grant Scheme (Ministry of Education, Malaysia)</td>
<td>FP020-2014A</td>
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