

### 3. ALVEOLAR BONE LOSS RELATED TO AGE AND NATURALLY OCCURRING CHRONIC INFLAMMATORY PERIODONTAL DISEASE (CIPD) IN THE SPRAGUE DAWLEY RAT

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There has been an increased emphasis on the age changes of the periodontium (Severson et al, 1978). Suitable animal models have been used to study age changes in the periodontium (Ive et al, 1980). An important quantifiable parameter for chronic inflammatory periodontal disease (CIPD) is the loss of alveolar bone (Rowe & Bradley, 1981). The main objective of the present study is to measure the histological loss of the interdental septal alveolar bone height with advancing age and naturally occurring CIPD in the Sprague Dawley rat.

Thirty each of three months old, one year old and two year old male Sprague Dawley rats (total = 90) were sacrificed and the interdental area between the right mandibular first molar tooth and the right mandibular second molar tooth was examined with the light microscope using an eye piece graticule. The distance from the cemento-enamel junction (CEJ) to the crest of the interdental septal alveolar bone was measured in millimetres. The distance ( $X \pm SD$ ) between the CEJ and the alveolar crest in the three months old, one year old and two years old rats were  $0.79 \text{ mm} \pm 0.0\text{m mm}$ ,  $0.88 \text{ mm} \pm 0.29 \text{ mm}$  and  $1.14 \text{ mm} \pm 0.54 \text{ mm}$  respectively. There was a positive ( $r=0.34$ ) linear ( $y=0.17x + 0.59$ ) and significant ( $p>0.01$ ) correlation between the advancing age and the distance between the CEJ and the interdental septal alveolar bone crest.

It could be concluded that, the height of the crest of the interdental septal alveolar bone decreases with advancing age. It is similar to the observations of Belting et al. 1953 and Wennstrom et al. 1980 among others. Further, it could be expected that CIPD contributes in some extent to the decrease in the height of the interdental septal alveolar bone. Except for three rats who showed histopathological evidence of vasodilatation of the supracrestal connective tissue, the histopathological preparations of the remainder of the two year old rats showed some degree of disorientation in the arrangement of the supracrestal transeptal fibre bundle groups only. There was no fibre bundle disorientation in the three months old rats and in one-year-old rats.

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