<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Effect of DBM on the healing of intramembranous bone graft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Deng, YM; Samman, N; Rabie, ABM</td>
</tr>
<tr>
<td><strong>Citation</strong></td>
<td>The 73rd General Session and Exhibition of the International Association for Dental Research, Singapore, 28 June-1 July 1995. In Journal of Dental Research, 1995, v. 74 n. 2 suppl., p. 467, abstract no. 531</td>
</tr>
<tr>
<td><strong>Issued Date</strong></td>
<td>1995</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10722/53268">http://hdl.handle.net/10722/53268</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td>This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.</td>
</tr>
</tbody>
</table>
529 Effect of Local Administration of Estradiol on Experimental Tooth Movement in Ovariectomized rats. T. Yamashita and T. Takano-Yamamoto

(Dept. of Orthodontics, Fac. of Dentistry, Osaka University, Osaka, Japan)

We have previously shown osteoclast activity increased, and on the contrary, the replacement of estrogen drugs decreased the osteoclast activity. The purpose of the present study was to investigate histomorphometrically the effect of local administration of estrogen on the remodeling of alveolar bone during experimental tooth movement in ovariectomized adult rats. Ovariectomy (OVX) rats, 20 ul. of estradiol benzoate were implanted in each orbit, and 2 weeks later 24 rats were randomized into 3 groups at OVX (control) and OVX rats were sham-operated (O VX/sham-operated) and 14 days later the maxillary first molars were moved buccally with an appliance fabricated from nickel-titanium wire at a contacting force of 150 g. Micro-CT scans of the OVX, sham-operated, and OVX/sham-operated rats were performed before and after tooth movement. The results showed that OVX decreased bone formation. OVX/Sham-operated rats showed a decrease in the trabecular number, osteoblast surface, and bone volume. These findings suggest that the remodeling of alveolar bone during experimental tooth movement is related to the expression of estrogen receptors and that the OVX rats decreases bone turnover facilitated by osteoclast in the OVX rats. During experimental tooth movement, estrogen may have different effects on bone turnover depending on the region of the tooth movement.


530 Osteoblast Gene Regulation in Healing Tooth Sockets. M.T.L. XU*, K. NGUYEN, J. BORKHUS, S. DE CROMBRUGGHE and R.N. SOUZA (U. of Texas, Houston, Health Science Center Dentistry, M.D.-Anderson Cancer Center, Houston, TX, USA)

Like bone development, wound healing after tooth extraction follows an orderly series of predictable events where osteoblasts produce a type I collagen-enriched matrix. While the experimental model of healing after tooth extraction has been established, little information exists about the genes and proteins that are expressed by bone formation by osteoblasts. Mutational analyses of tsp508 in mice with an TSP-508 collagen promoter-reporter gene confirmed this model and mapped the region of the gene that is activated in the healing of the milk teeth during after tooth extraction. Significantly, TSP-81, a morphogen in the TSP-81 gene family, has been shown to interact with discrete activator proteins within this region to stimulate type I collagen transcription. Three studies were performed to determine whether the hypomorphic (TSP-400) bone formation mouse has an altered bone regeneration and to correlate reporter gene activity with that of endogenous TSP and TSP-81. After 8 weeks of forelimb maxillary sinuses were performed on 8 TSP-81 mice and medicated with endogenous TSP-81 reporter activity expression. Our results indicate that the 0.9 kb to 3.2 kb region of the (TSP-81) collagen promoter contains genetic elements that can change osteoblast activity at two days after extraction and that transient expression patterns correlated closely with the distribution of endogenous collagen mRNA and TSP-81. We conclude that the healing tooth socket is a valuable model to study osteoblast gene activation in bone regeneration. Studies were supported by NIH grants DE0157 (R01 DE0157) and DE525 (R21 HL042551 (B.L.C)).

531 Expression of Osteoblast mRNA in Bone Wound Healing. J. CHEN, F.H. THOMASON, R. HM and D. M. RANKL (Dept. of Pedodontie Dentistry, The University of Texas Health Science Center, San Antonio, Texas, USA)

Osteoblast bone biogenesis at preosteoclast, osteoblast, and the reconstruction of periodontal ligament bone and demineralized connective tissue. Previous studies have suggested that OPN may be involved in formation, repopulation and remodeling of bone. To investigate the OPN gene expression during bone wound healing, rat calvariae were divided into sham operated and OVX groups. Fifteen, 3-month-old rats were used in these experiments. Under general anesthesia, a 2 mm in diameter circular defect was created on the rat calvaria with a surgical trephine using a dental bur. Animals were sacrificed at 6 and 8 days after surgery, respectively. Deparaffinized, dehydrated samples encompassing bone and underlying soft tissue were examined by histology, processed for histological examination and in situ hybridization, and the osteoblast activity with antibodies for OPN and the collagen type I. The OPN mRNA revealed that the bone-forming cells expressed high levels of OPN mRNA. The signals were concentrated in the phagosome osteoclasts lining the newly formed bone tissue that was not fully mineralized. OPN signals were also seen in the cells in the endosteal space in calvarial bone. Bone marrow cells and connective tissue cells between the bone trabeculae showed no hybridization with the OPN probe. It was of interest to note that osteoclasts located near the defect site showed mineralization within 4 weeks. This was also observed with mineralized bone in the adjacent osteoblasts. The results indicated that the expression of OPN is important in the repair of bone as well as in normal bone remodeling.

532 Remodeling of Rat Alveolar Bone after Cessation of Bisphosphonate Treatment. Y. TAYA* and T. AOKA (Dept. of Pathol., The Nippon Dental Univ., Tokyo, JAPAN)

We previously reported that, when 1% HEP (1-hydroxyethylidene-1,1-bisphosphonate) in drinking water was given continuously over several weeks, the periodontal ligament space of rat molars was occupied by osteoid, giving rise to enkelyosoma. In the present study, we aimed at investigating the site of precipitated osteoid and the reconstruction of periodontal ligament bone after cessation of the bisphosphonate treatment. Fifteen Wistar rats (about 100 g b.w.) were kept with water containing 1% HEP for the initial 28 days and thereafter HEP-free water for various periods (4-28 days). In control groups, the animals were given drinking water with different concentrations of OPN in the drinking water throughout the entire experimental periods. Techniques used entailed histomorphometry, bone morphometry and bone labelling with tetracycline. Remarkable findings were that once mineral deposition of the precipitated osteoid occurred around 7 days after cessation of the bisphosphonate administration, osteoclastic resorption became dominant. 2) at the same time, the periodontal ligament bone was formed. 3) in the in vivo hybridization signals were diminished, consistent with the above results of Northern hybridization. We conclude that the expression of OPN is important in the repair of bone as well as in normal bone remodeling.

533 The Variation of Fluorescence Levels with different methods of infusion of the. S. ANAND (Ministry of Health, Sri Lanka)

Tae, a beverage which is widely consumed in Sri Lanka, is infused by different methods depending on the Socio Economic status of the drinker. The F levels of the brew was measured after each method, using the Orion QA 270 pH meter.

1. The variation of Fluorescence levels after addition of milk was investigated using 10% tea samples. The reduction of F by adding milk was insignificant and the double strength added with milk was 1.83 ppm while the single strength was 3.6 ppm.

2. The infusion of tea leaves for the second child to the children.

3. F is an important factor in the quality of the tea. The F levels of the second brew (0.36 ppm) was significantly less than that of the first (2.61 ppm).

4. The addition of milk to the tea after addition of milk and the use of the second brew added with milk in the same manner reduced the level of F levels of the tea. The F levels of the second brew was 1.26 ppm while the first brew was 1.33 ppm.

5. Sometimes the tea is added to the milk, and the use of the second brew added with milk in the same manner reduced the level of F. The F levels of the first brew was 1.26 ppm while the second brew was 1.33 ppm.

6. The addition milk to the second brew produced a significant drop in the F levels.

Supported by the MRC of Canada and the RSQ of Quebec.