

## **PC-II-13. Effect of scaling and root planing evaluated by subtraction radiography**

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### **Background**

Scaling and root planing is at the core of all treatment for periodontal disease. Although the efficacy of scaling and root planing has been evaluated by various methods, there are a few radiographic evaluation. Clinically, we often find that subgingival instrumentation followed by a significant increase of bone density or bone fill. In this study, the effect of scaling and root planing on hard tissue was evaluated with subtraction radiograph.

### **Materials and methods**

Chronic periodontitis patients with vertical bone loss over 3mm were included, and overall 39 sites in 13 patients were enrolled. Baseline images were acquired, and scaling and root planing were performed and oral hygiene instruction was educated. After 1 month, the patients were re-evaluated and further periodontal treatment were done if needed. 6 months after scaling and root planing, follow-up images were obtained. All radiographic analysis was performed using a software package called computer assisted radiographic evaluation (Sunny). Three region of interest(ROI) were defined as the most coronal, middle, and the most apical of the defect, and the forth was considered as a control region and was placed at a distant site that would not be expected to change. Gray level of each ROI were measured. Gray level 128 was assumed as no change, and over 128 as bone density gain, under 128 as bone density loss.

### **Results**

In 117 sites except control sites, 101 sites(83.3%) showed bone density gain, while 16 sites(13.7%) showed bone density loss. Overall 18.65 gray level increased. Regarding region, ROI in coronal, middle, base significantly increased, and ROI in

base(151.27) significantly increased more than ROI in coronal(139.19). There was no significant differences between single-rooted and multi-rooted teeth. Significant bone density gain was seen in PPD over 5mm than in under 5mm.

### Conclusion

Within the limit of present study, it can be concluded that scaling and root planing influence bone density gain positively when evaluated with subtraction radiography.