

AAO Foundation Award Final Report

Please prepare a report that addresses the following:

Type of Award, e.g., Orthodontic Faculty Development Fellowship Award,

Name(s) of Principal Investigator(s) – Aditya Chhibber

Title of Project – Effect of high frequency vibration on alveolar bone density during orthodontic tooth movement – A pilot project.

Period of AAOF Support - 07-01-14 to 06-30-15

Amount of Funding - \$15000

Summary/Abstract Introduction- The aim of this study was to evaluate the effect of high frequency vibration on alveolar bone density during orthodontic tooth movement.

Methods- Twenty-two adult patients (age range 18-30 years) were randomly assigned into two groups, tooth movement only (G1) or high frequency vibration and tooth movement (G2).

Patients in G2 were asked to use the Accelident device for 20 minutes per day providing 30 hertz frequency. All patients were bonded with 3M ceramic brackets. CBCT scans using Planmeca promax with a voxel size of 150um were taken on patients prior to orthodontic treatment (T1) and seven months after orthodontic tooth movement (T2). Image acquisitions were imported into Image J software to evaluate bone volume over tissue volume (BV/TV) in the maxillary canine to 1st premolar region.

Results- 3 patients were eliminated from the study due to blurry images and/or inability to delineate trabecular bone. Mann Whitney test was performed to compare the outcome of bone density between the two groups. No significant difference ($P>0.05$) was found in the maxillary alveolar bone density between the two groups.

Conclusions- Use of high frequency vibration during orthodontic tooth movement does not minimize decrease in alveolar bone density during orthodontic tooth movement.

Response to the following questions:

1. Were the original, specific aims of the proposal realized? Yes
2. Were the results published? The results have not been published yet as we just finished data analysis for the study sample patients. If not, are there plans to publish? Yes we do plan to publish the data in a peer reviewed journal in the future.
3. Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?
The results will be presented in scientific meeting in the future.
4. To what extent have you used, or how do you intend to use, AAOF funding to further

your career? –

With the funding from the AAOF, we were able to evaluate the clinical question of the effect of high frequency vibration on orthodontic tooth movement. AAOF funding is a key component to promoting my career and gives me an opportunity to pursue my research interests and am thankful to them.

Accounting for Project; i.e., any leftover funds, etc. No.

Please mail hard copy to AAOF and also send electronically
(as a Word document and e-mail attachment) to
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