CLINICAL APPLICATION OF VITAMIN D_3 IN ORTHODONTIC TOOTH MOVEMENT – A CLINICAL TRIAL

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ABSTRACT

Background and objectives: Treatment time is a very important factor that a patient contemplates about before deciding to go in for orthodontic treatment. A significant proportion of patients who require orthodontic treatment decide against going in for it discouraged by the relatively lengthy treatment period. The purpose of this study was to determine if the rate and amount of orthodontic tooth movement could be enhanced by the injection of vitamin D_3.

Method: The sample consisted of 15 patients requiring orthodontic treatment following therapeutic extraction of the first premolars. The patients were in the age range of 13-25 years with good general physical health. In each patient, individual canine retraction was carried out on either side. 1 ml of vitamin D_3 (Arachitol®-6l) in a vehicle of local anaesthetic solution (Xylocaine® 2% Adrenaline 1:200000) was injected into the buccal vestibule immediately distal to the canine to be retracted on one side. On the contralateral side, 1 ml of local anaesthetic solution was injected as control in the same site. This was done on the 7th, 21st & 47th days of canine retraction. The exact amount of canine retraction was assessed using stable landmarks such as the maxillary palatal rugae, after taking pre- and 60 days post- canine retraction occlusograms.

Results: The present study showed that teeth that had received injections containing vitamin D_3 had moved considerably lesser than matched control teeth, contrary to the results obtained from animal studies cited in the past literature.

Interpretation & Conclusion: This is the first clinical trial of vitamin D_3 on humans. The present study might open up new vistas in the treatment of periodontally compromised cases and ortho-perio relationships. Its potential application for anchorage augmentation may be another exciting avenue.

Keywords: vitamin D_3; orthodontic tooth movement