

Effect of platelet rich plasma on the rate of orthodontic tooth movement

Zahra Khalid

National University of Medical Sciences, Pakistan.

Introduction & Objective: Increased orthodontic treatment duration has always been a subject of concern for both orthodontists and patients. Various methods have been evaluated in the past to expedite tooth movement each having its own merits and demerits. Platelet rich plasma is being used as a valuable adjunct to promote tissue regeneration in various specialties of medicine and dentistry. Therefore the objective of this study was to evaluate the effect of platelet rich plasma on rate of orthodontic tooth movement

Method: This randomized controlled trial was conducted on 2 parallel arms. It was conducted at Orthodontics department, Armed Forces Institute of Dentistry, Rawalpindi, from May 2018 to July 2019. Ten patients were included in this study that required extraction of maxillary first premolars for orthodontic treatment. After alignment and extraction of maxillary first premolars, canine retraction was started with closed Ni Ti coil spring on both sides of the maxillary arch on a 17x25 SS wire. PRP from 5 ml blood was prepared and 60 units were injected into the buccal vestibule of patient on one side of the arch which was the experimental side. The other side served as the control side. Random allocation to be control or experimental side was done by lottery method. The distance between the lateral incisor and the canine was measured on both sides before starting canine retraction. The same measurements were recorded after four weeks of retraction. The difference between pre and post retraction measurements was recorded. The difference in the rate of canine retraction between experimental and control sides was compared using Wilcoxon signed rank test considering p value of <0.05 significant and results were analyzed using SPSS 21 software.

Results: Ten patients were randomized to control and experimental groups. Results were analyzed on intention to treat basis. The mean rate of tooth movement on the control and experimental sides was 0.83 ± 0.64 mm and 2.14 ± 1.014 mm respectively. There was an overall increase of 1.603 ± 0.5037 mm movement per month on the experimental group. No harms were detected. Thus there was an approximately a three-fold increase in rate of orthodontic tooth movement with a ratio of 2.91:1 in experimental and control group.

Conclusion: Platelet rich plasma is an effective minimally invasive technique for increasing the rate of orthodontic tooth movement.

Biography

Zahra Khalid has completed her BDS from Army Medical College, National University of Science and Technology Pakistan. She is currently working as a Consultant and Senior Registrar at Armed Forces Institute of Dentistry at National University of Medical Sciences, Pakistan.

zahrakhalid26@gmail.com