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Oral

Salivary Enzymological Profile Of Lactate Dehydrogenase (LDH), Tartrate Resistance Acid Phosphatase (TRAP), Alkaline Phosphatase (ALP) And Aspartate Aminotransferase (AST) During Orthodontic Treatment

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Introduction: Orthodontic tooth movement is a complex process involving tooth and periodontal tissue, which release enzymes and biomarkers. The aim of this study was to investigate enzymes activities of salivary fluid during orthodontic treatment. **Materials and Methods:** A group of nineteen healthy subject (mean age 21.5 years) with Class II/1 malocclusion who required extraction of maxillary first premolar were recruited. Saliva samples were collected from these 19 patients that underwent canine traction using fixed appliances. Enzymes activities were measured before placement of fixed appliances (basal activity) followed with immediately before and weekly canine retraction for five weeks. The specific Lactate Dehydrogenase (LDH), Aspartate Aminotransferase (AST), Tartrate Resistance Acid Phosphatase (TRAP) and Alkaline Phosphatase (ALP) activities in saliva sample were analyzed using spectrophotometer (405nm). Result: No statistical significant ($p > 0.05$) difference was noted in LDH activity between basal activity and during canine retraction period. AST showed higher activity compared to basal activity from week 0 to week 1 with statistically significant increased ($p < 0.05$) found in week 1. ALP showed significantly higher enzyme activity compared to basal activity from week 1 to 5, with the peak level at week 5. While TRAP showed significant increase in enzyme activity compared to basal activity only at week 2 after canine retraction. **Conclusion(s):** Orthodontic tooth movement can be monitored through the expression of AST, TRAP and ALP activity in saliva. Saliva LDH cannot be used as a biomarker in monitoring tooth movement.

KEYWORDS: salivary enzymological profile, orthodontic tooth movement