

## ***ABSTRACT***

### **BACKGROUND:**

Chronic Periodontitis is an infectious disease resulting in inflammation within the supporting tissues of the teeth leading to progressive attachment loss and bone loss. It is characterized by the liberation of reactive oxygen species, that has deleterious effects on these tissues and is eliminated by various protective antioxidant mechanisms. Superoxide dismutase (SOD) is known to be one of the most prominent antioxidant enzymes in the body and its levels are considered to be of clinical significance in detecting the varying degrees of tissue destruction. Vitamin E is a group of naturally occurring tocopherols that possesses antioxidant properties. Therefore it will be informative to evaluate the cumulative effect of Chronic Periodontitis with and without Vitamin E supplementation on the levels of SOD in the gingival crevicular fluid (GCF).

### **AIM:**

To elucidate the levels of Superoxide Dismutase in response to Non Surgical Periodontal Therapy with and without Vitamin E supplementation in patients with Chronic Periodontitis.

### **MATERIALS AND METHODS:**

This study was performed on 46 participants which included 17 patients with chronic periodontitis supplemented without Vitamin E (Group II), 17 patients with chronic periodontitis supplemented with Vitamin E (Group III) and 12 systemically healthy individuals with clinically healthy periodontium who served as controls (Group I). The clinical parameters [Plaque Index (PI), Probing Depth (PD), Clinical Attachment Level (CAL), Modified Sulcus bleeding index (mSBI%)] and biochemical parameters

like the GCF- SOD levels were measured at baseline. All the patients except healthy controls were treated with scaling and root planing followed by evaluation of the above mentioned clinical and biochemical parameters after 6 weeks.

## **RESULTS:**

Results showed that all the clinical parameters improved after scaling and root planing in Group II and Group III, with the patients in Group III showing a greater reduction in PI ( $p<0.05$ ), PD ( $p<0.05$ ), mSBI% ( $p<0.05$ ) and greater gain in clinical attachment level ( $p<0.05$ ) when compared to Group II patients and healthy controls and, this difference was statistically significant. With respect to the levels of Superoxide dismutase in gingival crevicular fluid, patients in Group III showed a greater reduction, 6 weeks post scaling and root planing when compared to Group II patients and this difference was statistically significant ( $p<0.05$ ).

## **CONCLUSION:**

From the results obtained, it was concluded that scaling and root planing reduces Superoxide dismutase levels in the gingival crevicular fluid of patients with chronic periodontitis with significant reduction appreciated in Group III patients. The group being subjected to Vitamin E supplementation exhibited better improvement clinically and biochemically, 6 weeks post scaling and root planing.

## **KEY WORDS:**

Chronic Periodontitis, reactive oxygen species, antioxidant, superoxide dismutase, vitamin, tocopherols, vitamin E supplementation, Gingival Crevicular Fluid.