



## The effect of non-surgical periodontal therapy on the level of CCL25 in GCF of chronic periodontitis patients



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### Abstract:

Chronic periodontitis is defined as “an infectious disorder causes inflammation in the supportive tissues of the teeth, advancing loss of attachment, and losing of bone.”(1) Such description illustrates the main clinical and etiological characters of the disorder:

(1) formation of dental pulp (dental plaque); (2) periodontal inflammation (e.g., gingival swelling with bleeding on probing); and (3) Clinical attachment loss and alveolar bone loss.

periodontitis may also be associated with a number of systemic disorders and syndromes. In most cases, patients with systemic diseases that lead to altered host immunity may also show periodontal destruction. Therefore, periodontitis is a disease that is not only limited to the area of the oral cavity; it is also associated with several systemic diseases (e.g., cardiovascular disorders, diabetes mellitus).(2)

Although chronic periodontitis is most frequently shown in grownups, it may happen in childhood and teenagers as a reaction to long standing plaques and calculus accumulating.

Characteristic clinical picture in cases having non-treated long standing peri-odontitis comprise supragingival and subgingival plaque and calculus, gingival swelling, redness and loss of gingival stippling, change in gingival margins (e.g., rolled, flattened, cratered papillae, recessions), presence of periodontal pockets, bleeding on probing, attachment loss (angular or horizontally), alveolar bone loss, root furcation involvement (exposure), increased tooth mobility, Change In Tooth Position and tooth loss

According To The site-specific nature the number of teeth with clinical attachment loss classifies chronic periodontitis into

Localized chronic periodontitis: less than 30% of the sites show

Attachment and bone loss and Generalized chronic periodontitis:

30% or more of the sites show attachment and bone loss, The

Disease may also be described by the severity of disease as either

slight (1 to 2 mm of loss; , moderate (3 to 4 mm of loss; , or severe

(≥ 5 of loss mm; on the basis of the amount of clinical attachment loss

(CCL25) is a small [cytokine](#) related to the CC [chemokine](#) family. CCL25 is believed to have a role in [T-cells](#)

development. 3 CCL25 emerges its effects by binding to the [chemokine receptor CCR9](#). 4.5

Human CCL25 is [14.2 kDa protein precursor](#) containing 151 [amino acids](#). The gene for CCL25 (scya25) is present on human chromosome 19. It is produced by thymic dendritic cells. It is mainly expressed by thymic stromal cells. it is chemotactic for dendritic cells, thymocytes and activated macrophages, but not lymphocytes and neutrophils.

TECK is represented mainly in the mucosal layer of the intestine and colon, it has a role in inflammatory intestinal diseases as bowel

Syndrome and Crohn's Disease (6).

TECK can attract pre-osteoclasts to form mature osteoclasts, it can prevent their apoptosis when interact with LPS from *Porphyromonas gingivalis* (7), this

mechanism is found in cases of breast and ovarian cancer(8)

#### Aim of the study

To detect the presence of thymus expressed chemokine (CCL25) in GCF of chronic periodontitis patients

## PATIENTS AND METHODS

### Study population

A total of 30 patients with chronic periodontitis will be chosen from the outpatient from Oral Medicine and Periodontology Department, Faculty of Dentistry , Mansura University , adult systemically healthy people having chronic periodontitis , non smokers , non pregnant or non lactative females.

Patients with chronic periodontitis (cases) were included in this study after examining the following parameters:

- 1) periodontal pocket depth
- 2) clinical loss of attachment
- 3) gingival index
- 4) bleeding on probing
- 5)

### Patient Management:

- The patients had all of the info attainable about the management that they should get and steps that will be done. This comprised the possible influences or dangers, and different treatment choices. The patients comprehended this elucidation in broad terms.
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- Selected subjects had phase one periodontal therapy (scaling and root planning) during first visit
- Giving the patient Oral Hygiene instructions
- Patients were recalled four weeks after phase one therapy.

Special Investigation;

- Panoramic Radiograph (OPG) once before periodontal therapy

### GCF collection

GCF assembly was happened at a consequent visit after the first examining. the separate tooth location was insulated by cotton rolls, supra-gingival plaques was cautiously eliminated and the location was air-dried through the air syringe. A paper strip was applied into the crevice one–two mm for 30s. In patients of visible contaminating by blood, the strips were discarded and novel locations were sampled. Stripes from every subject will be positioned into Eppendorf Tubes filled with 0.5 mm of saline

### Data analyses:

Data have been recorded and statistically analyzed utilizing the Statistics Package for Social Sciences (SPSS) edition 16.

-Qualitative info has been identified like counts and percent.

-Quantitative info has been identified like means (SD) or medians, like proper. They have been examined for normality by Shapiro-Wilk exam.

### Results

All clinical parameters and CCL25 levels were reduced after phase 1 periodontal therapy with statistically significant difference

that there is great decrease in CCL25 level in GCF in cases after phase 1 periodontal therapy than before treatment. The median level of CCL25 in cases before treatment is 62.4 and after treatment is 4.3

there is marked decrease in all clinical parameters (CAL , GI and PD) for all patients after phase 1 periodontal therapy than before treatment with statistically significant difference

About 40% of patients show no bleeding on probing after phase 1 periodontal therapy although all cases show bleeding on probing before treatment

### Discussion

Hence, all cases show significant decrease in all clinical parameters, it is normal finding as all cases are in mild or moderate chronic periodontitis. Most of cases show marked decrease in CCL25 level, indicating the direct effect of phase 1 SRP treatment on the level of CCL25 in GCF.

The study shows that there is equal gender distribution between males and females in cases. Also, it shows that there is marked predilection for rural residents than urbans. This indicates that rural residents show more interest in their oral hygiene than estimated.

So, the actual in vivo relationship between CCL25 and chronic periodontitis should be focused in future studies. This study gives the green light to investigate the real role of CCL25 in chronic periodontitis and its relation to pathogenic bacteria and to the defense mechanism of the periodontal tissues.

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