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Assessment of Inflammatory marker status in oral submucosa fibrosis patients

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ABSTRACT

Oral submucous fibrosis (OSMF) has been described as “an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. OSMF associated with vesicle formation, and inflammatory reaction followed by a change. It is the most common precancerous condition. 30 OSMF patients and 30 healthy individuals from the OP of Saveetha Dental College. Serum samples were analyzed for CRP by Turbilatex method using ERBA CHEM 5plus analyzer. There is a significant increase in C reactive protein levels ($p < 0.005$) in OSMF patients when compared with healthy controls. Our findings suggest that prolonged or highly affected OSMF patients can cause stress and other problems related to inflammatory pathways.



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INTRODUCTION

Oral submucous fibrosis (OSMF) has been described as “an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. OSMF associated with vesicle formation, and inflammatory reaction followed by a change. It is the most common precancerous condition (Anand Kumar C Bhateja *et al.*, 2011). It is the most common precancerous condition. Chronic progressive disorder and its clinical features depend on the stage of the disease major causative factor of the disease are chewing of betel nut. (Donoghue M *et al.*, 2015)

Early diagnosis of the disease plays an important role in causative disease to its malignant transfor-

mation many pathogeneses of the disease is inflammation assess the level of inflammation helps to prevent the further progression of the disease. (Erlinger TP. *et al.*, 2001), CRP is the simplest technique to elevate the inflammations Stages of the disease at the initial phase of the disease, the mucosa feels leathery with palpable fibrotic bands (Kakar *et al.*, 2011). At the advanced stage, oral submucosa loses its resiliency and becomes blanched, stiff. It is believed to begin in the posterior part of the oral cavity and gradually spread outward (Khanna, N.N. *et al.*, 1995) oral submucous fibrosis, a precancerous condition of the oral cavity, has been studied by many fields. The available epidemiological data showed a clear-cut geographical and ethnic predisposition, suggesting the certain people habits prevalent among the population possible etiological factors. This led some workers to consider the importance of systemic predisposition, to the effects of local factors on the oral mucosa Oral submucous fibrosis (OSF) is a premalignant condition caused by betel chewing (Khanna, J.N.; *et al.* (1995). It is very common in Southeast Asia but has started to spread to Europe and North America. OSF can lead to squamous cell carcinoma, a risk that is further increased by concomitant tobacco consumption. The present study was planned to evaluate the inflammation in OSMF

patients as the change in CRP levels may have a diagnostic and prognostic role in the potentially malignant lesions (T. Nandhini *et al.*, 2016)

METHOD AND MATERIALS

60 subjects were selected from the outpatient department of Saveetha Dental College and Hospitals. They were divided into two groups.

Group I (Control group) – Normal healthy individuals – 30 in numbers

Group II (Study group) – OSMF patients – 30 in numbers

Inclusion Criteria

1. Normal healthy individual with normal BMI (19.9-24.9)
2. OSMF Patients

Exclusion Criteria

1. Obese Individuals
2. Subjects with systemic diseases like Diabetes Mellitus, CVD, Hypertension and endocrine disorders.
3. Immunocompromised persons

Sample collection and procedure

After obtaining written consent from the participants, 3ml of venous blood was collected from the participants and blood was distributed in the plain collection tube and centrifuged in 2500 rpm for 10 minutes. The Serum was separated and analyzed for CRP by Turbilatex method using ERBA CHEM 5plus analyzer.

RESULTS AND DISCUSSION

Table 1: Mean, SD and p-value of Control and Study groups

PARAMETERS	Control		OSMF		p-value
	Mean	SD	Mean	SD	
CRP(mg/dl)	2.98	1.16	10.78	4.4	<0.005

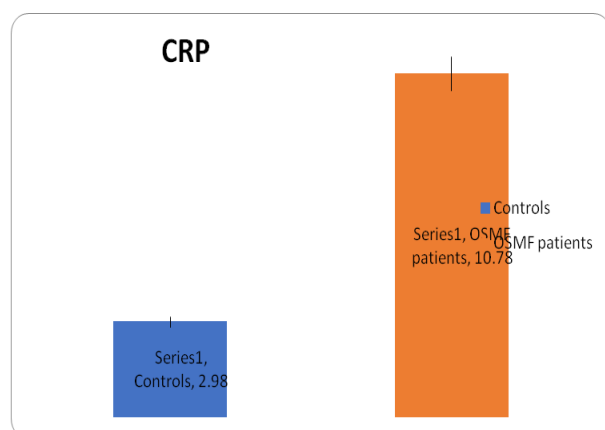


Figure 1: CRP levels of OSMF

The CRP levels of OSMF 10.78 ± 4.4 were significantly high when compared with healthy individuals 2.98 ± 1.16 the significant value is

$p < 0.005$ The incidence of OSMF is increasing like an epidemic among youngsters in the Indian and South East Asian population. The etiology for OSMF is still obscure and a varied number of factors have been proposed, areca nut chewing being the most important (Pindborg, JJ *et al.*, 1989). Several recent studies have been carried out on micronutrient status in OSMF. C-reactive protein is a receptive marker of inflammation and cancer that is elevated in response to infection and tissue harm in the active phase of diseases. (Shaikh.S *et al.*, (2006).

In the acute phase reactions, the CRP levels are primarily increased in the liver and additional organs in response to stimulation. Both acute and chronic stimulation can increase CRP. It also plays a very important role in immunity by acting as a defence against bacterial and viral infections. Elevation of CRP has also been observed in connective tissue diseases, infections, inflammatory conditions, and women using oral contraceptives (Uitterlinden AG *et al.*, 2006). Ascorbic acid levels have been investigated in several cancer-related studies some studies have reported that ascorbic acid enhances destruction of cancer cells. Iron has been evaluated in various forms in OSMF (Patel PS *et al.*, 2003).

Hemoglobin levels, serum iron, total iron binding capacity, and serum transferrin has been assessed. In addition, iron has also been estimated in the tissue samples of patients with OSMF. The main reason is due to habits like tobacco consumption in the form of chewing or smoking. Some of the research papers have observed an association between serum CRP levels and different types of malignancies such as esophageal, colorectal, renal, and prostate cancers (Srilekha. M *et al.*, 2015).

There have been studies in the literature that show that there is the relationship between chronic inflammation and oral cancer. One of the important markers of inflammation is CRP (Sirsat SM *et al.*, 1966) There are many studies which show that CRP levels increase with cancer, but there are few studies where they have documented elevated of CRP levels in PMD. (Strickland SS *et al.*, 1998)

CONCLUSION

Our findings suggest that prolonged or highly affected OSMF patients can cause stress and other problems related to inflammatory pathways. Within the limitation of the study, in this study, OSMF shows significantly high when they compared with healthy individuals.

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