

Original Research

Assessment of Serum Lipid Profile in Patients with Oral Submucous Fibrosis and Oral Squamous Cell Carcinoma: An in-vivo study

Rajiv Puri, B.D.S., M.D.S.

Graded Specialist (Oral & Maxillofacial Pathology), Army Dental Corps

ABSTRACT

Background: Biochemical studies in evaluation of cancer have shown that various substances alter quantitatively in the serum during tumor development and are referred to as tumor markers. Hence; the present study was planned for assessing the serum lipid profile in patients with oral submucous fibrosis (OSMF) and oral squamous cell carcinoma (OSCC). **Materials & methods:** A total of 60 subjects were included in the present study. Among these 60 subjects, 20 subjects were of OSCC, 20 subjects with OSMF and 20 healthy controls. A self-framed questionnaire was framed for assessing the clinical and demographic details of all the subjects. Blood samples were taken from all the patients and were sent to laboratory for assessment of serum lipid profile. In the laboratory, auto-analyzer was used for assessment. Compilation of all the results were done in Microsoft excel sheet and were analyzed by SPSS software. **Results:** Significant results were obtained while comparing mean serum lipid profile among OSMF patients, OSCC patients and normal controls. **Conclusion:** Mean serum lipid profile is significantly altered in OSMF and OSCC patients. However; further studies are recommended.

Key words: Lipid, Oral submucous fibrosis Premalignant

Received: 13 March, 2019

Revised: 22 April 2019

Accepted: 25 April 2019

Corresponding author: Dr. Rajiv Puri, B.D.S., M.D.S., Graded Specialist (Oral & Maxillofacial Pathology), Army Dental Corps, India

This article may be cited as: Puri R. Assessment of Serum Lipid Profile in Patients with Oral Submucous Fibrosis and Oral Squamous Cell Carcinoma: An in-vivo study. J Adv Med Dent Scie Res 2019;7(7): 168-170.

INTRODUCTION

Cancer is the second most common cause of death after heart diseases in developed countries, and the third leading cause of mortality following heart and diarrheal diseases in developing countries.¹ Oral squamous cell carcinoma (OSCC) comprises 92–95% of all oral cancers.¹ It is noteworthy that many oral squamous cell carcinomas develop from potentially malignant disorders (PMDs).^{1,3} Correct diagnosis and timely treatment of PMDs may help prevent malignant transformation in oral lesions.¹ Lack of awareness about signs and symptoms of oral PMDs among general population and even physicians are believed to be responsible for the diagnostic delay of these entities.⁴⁻⁶

Biochemical studies in evaluation of cancer have shown that various substances alter quantitatively in the serum during tumor development and are referred to as tumor markers. So, if the biochemical changes occur even before frank cancer has occurred, we can predict even in oral precancerous lesions and conditions whether a particular individual is at risk or not.⁷ Hence; under the light of above mentioned data, the present study was

planned for assessing the serum lipid profile in patients with oral submucous fibrosis (OSMF) and oral squamous cell carcinoma (OSCC).

MATERIALS & METHODS

The present study aimed to evaluate serum lipid profile in patients with oral submucous fibrosis and oral squamous cell carcinoma. Written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 60 subjects were included in the present study. Among these 60 subjects, 20 subjects were of OSCC, 20 subjects with OSMF and 20 healthy controls. A self-framed questionnaire was framed for assessing the clinical and demographic details of all the subjects. Complete history of personal habit history of all the subjects was also obtained. Exclusion criteria for the present study included:

- Diabetic and hypertensive subjects,
- Subjects with history of any metabolic disorder

Blood samples were taken from all the patients and were sent to laboratory for assessment of serum lipid profile. In

the laboratory, auto-analyzer was used for assessment. Compilation of all the results were done in Microsoft excel sheet and were analyzed by SPSS software. Chi-square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

In the present study, a total of 60 subjects were included in the present study. Among these 60 subjects, 20 subjects were of OSCC, 20 subjects with OSMF and 20 healthy

controls. Mean age of the subjects of the OSMF group, OSCC group and the control group was 45.8 years, 52.3 years and 48.8 years respectively. 60 percent of the patients of the OSMF group were males while the remaining were females. 50 percent and 60 percent of the patients of the OSCC group and control group were males while the remaining were females. In the present study, significant results were obtained while comparing mean serum lipid profile among OSMF patients, OSCC patients and normal controls.

Table 1: Age and gender wise distribution of subjects

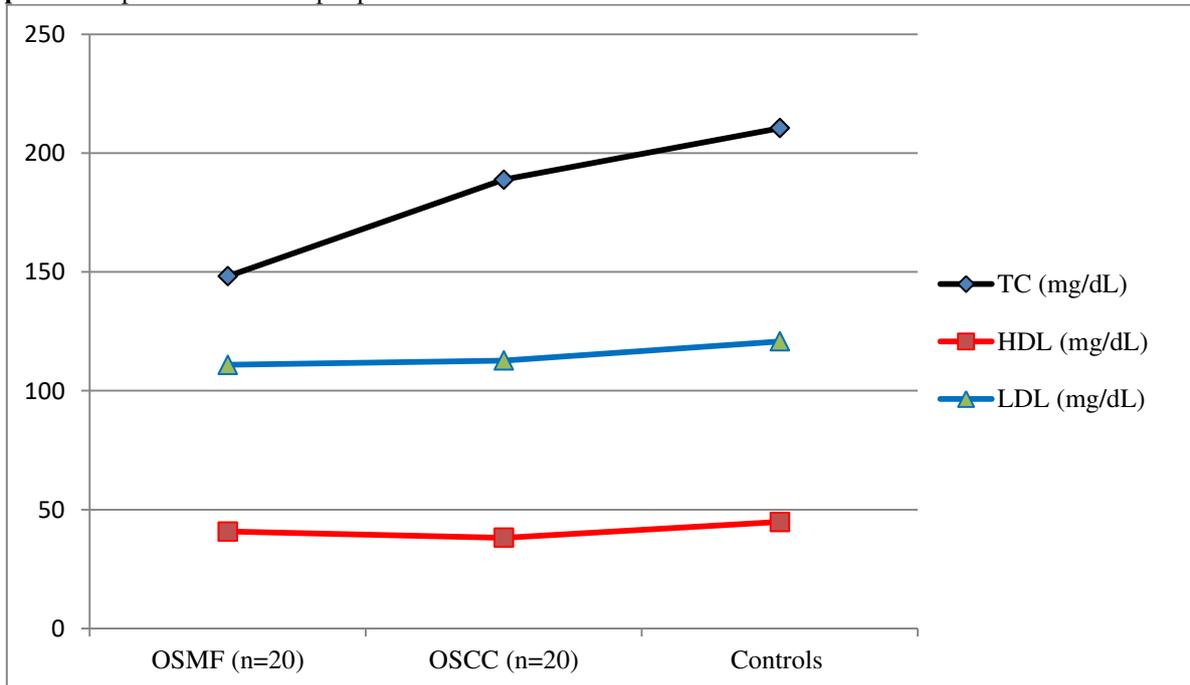
Parameter		OSMF (n=20)	OSCC (n=20)	Controls
Age group (years)	Less than 40	8	7	8
	More than 40	12	13	12
Gender	Males	12	10	12
	Females	8	10	8

Table 2: Comparison of mean lipid profile

Mean lipid profile	OSMF (n=20)	OSCC (n=20)	Controls	p- value
TC (mg/dL)	148.2	188.8	210.5	0.01*
HDL (mg/dL)	40.8	38.2	44.8	0.00*
LDL (mg/dL)	110.9	112.7	120.8	0.02*

*: Significant

Graph 1: Comparison of mean lipid profile



DISCUSSION

OSMF is a chronic debilitating disease and a premalignant condition of the oral cavity. Oral cancer is the leading cause of morbidity and mortality in India and is most commonly preceded by clinically definable premalignant lesions and conditions. OSMF is regarded as a precancerous condition and shows a significant tendency to develop cancer. Usefulness of variations in tissue / blood cholesterol levels in diagnosis and treatment of various diseases has been studied by several workers. Although, its prime role in pathogenesis of coronary heart diseases has been consistently found, researchers have reported an association of plasma / serum lipids and lipoproteins with different cancers.⁸⁻¹⁰

Hence; under the light of above mentioned data, the present study was planned for assessing the serum lipid profile in patients with oral submucous fibrosis (OSMF) and oral squamous cell carcinoma (OSCC).

In the present study, a total of 60 subjects were included in the present study. Among these 60 subjects, 20 subjects were of OSCC, 20 subjects with OSMF and 20 healthy controls. Mean age of the subjects of the OSMF group, OSCC group and the control group was 45.8 years, 52.3 years and 48.8 years respectively. 60 percent of the patients of the OSMF group were males while the remaining were females. 50 percent and 60 percent of the patients of the OSCC group and control group were males while the remaining were females. Garg D et al evaluated the alterations in serum lipid profile in untreated patients of oral submucous fibrosis (OSMF), oral leukoplakia, and oral lichen planus and proven cases of oral cancer with respect to healthy controls. In this case control study, 20 clinically and histopathologically proven patients of oral precancer and oral cancer each were compared with 20 healthy controls. In these groups, serum lipids including: (i) Total cholesterol. (ii) Triglycerides (TGL). (iii) High density lipoprotein cholesterol (HDL), low density lipoprotein cholesterol (LDL) and very low density lipoprotein cholesterol (VLDL) were analyzed. Decrease in plasma total cholesterol, triglycerides, HDL, LDL, VLDL in the subjects with the oral precancer and oral cancer as compared to the controls was statistically significant. There was also decrease in plasma levels of TGL and VLDL in oral cancer subjects as compared to precancer subjects. Thus, it was found that there is an inverse relationship between plasma lipid levels and patients. Post operative morbidity was increasing along with more operating time and increase in the depth of mandibular third molar impaction.¹¹

In the present study, significant results were obtained while comparing mean serum lipid profile among OSMF patients, OSCC patients and normal controls. Naheed Quaid Memon et al. estimated that lowering the serum cholesterol of the whole population by 10% should lengthen median life by 1 year, but the percentage of deaths from cancer should rise from 26.8% to 29.6%. Thus, he explains that there is a 3% more incidence of cancer in persons having decreased cholesterol. According to him, hypocholesteremia is a cause of cancer. However, this statement is very unlikely as it has not been still proved whether hypocholesteremia is a cause or effect of cancer.¹² Gupta observed a significant decrease in plasma total cholesterol, HDLC, and triglycerides in the patients with the precancerous lesions and conditions as compared to the controls which is in accordance with this study except for triglyceride levels. The decrease in plasma cholesterol in squamous cell carcinoma cases may

be due to enhanced lipid peroxidation due to decline in antioxidants.¹³

CONCLUSION

Under the lights of above mentioned data, the authors conclude that mean serum lipid profile is significantly altered in OSMF and OSCC patients. However; further studies are recommended.

REFERENCES

1. Lavaee F, Majd M. Evaluation of the association between oral lichen planus and hypothyroidism: A retrospective comparative study. *J Dent (Shiraz)* 2016;17:38–42.
2. Gorouhi F, Davari P, Fazel N. Cutaneous and mucosal lichen planus: A comprehensive review of clinical subtypes, risk factors, diagnosis, and prognosis. *Scientific World Journal* 2014. 2014;742826
3. JE Bouquot, BS Whitaker. Oral leukoplakia- rationale for diagnosis and prognosis of its clinical subtypes or phases. *Quintessence Int.* 1994;25:133–140.
4. T Axell, P Holmstrup, IR Kramer, JJ Pindborg, M Shear. International seminar on oral leukoplakia and lesions related to tobacco habits. *Community Dent Oral Epidemiol.* 1984;12:145–154.
5. WK Hong, J Endicott, LM Itri, W Doos, JG Batsakis, R Bell, et al. 13-cis-retinoic acid in the treatment of oral leukoplakia. *N Engl J Med.* 1986;315 (24):1501–1505.
6. P McCarthy, G Shklar. *Keratinizing lesions of the oral mucosa in Diseases of the oral mucosa, 2nded.* Philadelphia, USA:Lea and Febiger. 1980:182–202.
7. World health organization collaborating centre for oral precancerous lesions. Definition of oral leukoplakia and related lesions: an aid to studies on oral precancer. *Oral Surg Oral Med Oral Pathol.* 1978;46:518–539.
8. Chawda JG, Jain SS, Patel HR, Chaduvula N, Patel K. The relationship between serum lipid levels and the risk of oral cancer. *Indian J Med Paediatr Oncol.* 2011;32:34–7.
9. Ni WQ, Liu XL, Zhuo ZP, Yuan XL, Song JP, Chi HS, et al. Serum lipids and associated factors of dyslipidemia in the adult population in Shenzhen. *Lipids Health Dis.* 2015;14:71.
10. Mehta R, Gurudath S, Dayansoor S, Pai A, Ganapathy KS. Serum lipid profile in patients with oral cancer and oral precancerous conditions. *Dent Res J (Isfahan)* 2014;11:345–50.
11. Garg D, Sunil MK, Singh PP, Singla N, Rani SR, Kaur B. Serum lipid profile in oral precancer and cancer: a diagnostic or prognostic marker? *J Int Oral Health* 2014;6(2):33-9.
12. Naheed Quaid Memon, Jalil Quaid Memon, Abdul Vaheed Khan. Serum cholesterol levels and incidence of ovarian tumors in Pakistani women. *Pak J Physiol.* 2007;3(1):23–25.
13. Gupta SA. Alterations in serum lipid profile patterns in oral cancer and oral precancerous lesions and condition. A clinical study. *Indian J Dent.* 2011;2:1–7.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: **Creative Commons Attribution 3.0 License.**