

Prospective study of lipid profile in oral sub-mucosal fibrosis in Kolhan belt population of Jharkhand

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Abstract

Background: Oral Sub mucosal fibrosis is quite common among youngsters chewing tobacco, tobacco products and areca. Fibrosis is due to increased synthesis of collagen because of oxidation of poly unsaturated fatty acids which affect oral mucosa and may lead to tumorigenesis. **Methods:** Lipid profile study was carried out in both OSMF patients and normal (controlled) group. Fasting 3ml venous blood sample was collected in plain vial from every patient and controlled group. Blood was allowed to clot and serum was separated from centrifugation to study lipid profile. **Results:** 95 OSMF and 95 controlled groups were compared. In TC mean value of OSMF was 135.4 (SD±8.7), controlled group was 187.3 (SD±9.8), t test was -38.6 p<0.01. HDL study mean value in OSMF was 27.3 (SD±4.6) and controlled group was 37.2 (SD±2.3) t test -18.7 p<0.00. In LDL study mean value in OSMF group was 97.2 (SD±12.3) and in controlled group was 85.2 (SD±17.30) t test 5.5 p<0.01. In VLDL study mean value of OSMF was 17.2 (SD±2.2) and controlled group 39.3 (SD±7.1) t test -28.9 p<0.00. In TG study mean value of OSMF was 76.3 (SD±10.1) and in controlled group was 118 (SD±18.3) t test -19.4 p<0.00. **Conclusion:** Variations or altered values of lipid profile parameters and erythrocytes in OSMF patients indicates bad prognosis. Hence the present study will be useful to ENT surgeon to treat such patients efficiently to prevent morbidity and mortality.

Key Words: OSMF, TG, LDL, VLDL, TC, Controlled group.

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INTRODUCTION

Oral Sub mucosal fibrosis (OSMF) is a chronic, debilitating disease characterised by juxtaepithelial fibrosis of oral cavity⁽¹⁾. It is a precancerous condition a generalised pathological state of oral mucosa associated risk of cancer as per the WHO report². Lipids are high

energy yielding molecules and include fats and oils, waxes, phospholipids, steroids and some other related compounds. Fats and oils are made up of two kinds of molecules; one glycerol and three fatty acids joined by dehydration synthesis, known as triglycerides (TG) which are major form of energy storage³. Lipids are major cell membrane components essential for various biological functions including cell growth and divisions of normal and malignant tissues, Lipids play vital role in maintenance of structural and functional integrity of all biological membranes, activity of membrane bound enzymes and stabilization of mucous membrane⁴. During fibrosis there is increased synthesis of collagen and induce the production of free radicals and reactive oxygen species, which is responsible for high rate of oxidation or per constituents of poly un-saturated fatty acids which affect the essential constantans of cell membrane. Because of lipid per oxidation, there is greater utilization of lipid for

new membrane biogenesis. Hence lipid profile status was evaluated in OSMF and controlled group because severe deficiency of lipid profile has bad prognosis.

MATERIAL AND METHOD

95 patients regularly visiting ENT department of MGM Medical College hospital Dimna Road, Jamshedpur Jharkhand-831020 were studied.

Inclusive Criteria: The patients diagnosed (confirmed) as oral sub-mucosal Fibrosis, aged between 20 to 55 years was selected to study.

Exclusive Criteria: Oral sub-mucosal Fibrosis (OSMF) on radio therapy or chemotherapy undergoing surgery for OSMF. The patients having Diabetes Mellitus (DM), Hypertension (HTN), History of IHD or MI were excluded from the study.

Method: Same number i.e., 95 normal (controlled) volunteers were also selected for bio-chemical analysis to compare the variations in the lipid profile in OSMF patients. Fasting Blood sample of 3ml venous blood was collected under aseptic precautions in a plain vial. It was allowed to clot and serum was separated by configuration. Lipid profile was analysed by using automated analyser by following method.

1. Triglycerides by enzymatic method using Glycerol 3 – phosphate as substrate.
2. Total cholesterol by cholesterol oxidise peroxidise method.

3. HDL cholesterol by precipitation (with phosphotungstic acid) method.
4. LDL cholesterol using Friedwald formula.
 $LDL = TC - (HDL + TG/5)$

The duration of study was July to September 2020.

Statistical analysis: The parameters of lipid profile were compared in both groups (controlled and OSMF) by applying t test analysis was carried out in SPSS software. The ratio of male and female were 2:1.

OBSERVATION AND RESULTS

Table 1: In the comparative study of lipid profile in OSMF and controlled group was – mean value of OSMF in total count was 135.4 (SD±8.7) and controlled group was 187.3 (SD±9.8), t test (p<0.001). In HDL study mean value in OSMF was 27.3 (SD±4.6) and in controlled group was 37.2 (SD±2.3), t test was -18.7 and p value was highly significant (p<0.00). In the study of LDL mean value of OSMF was 97.2 (SD±12.3) and controlled group was 39.3 (SD±7.1) t test -28.9 and p value was highly significant (p<0.01). In the study of VLDL mean value of OSMF was 17.2 (SD±2.2), controlled group was 39.3 (SD±7.1) t test was -28.9 p value was highly significant (p<0.00). In Total triglyceride study mean value of OSMF was 76.3 (SD±10.1), controlled group was 118 (SD±18.3) p value was highly significant (p<0.00).

Table 1: Comparative study of lipid profile in OSMF and controlled (Normal) group

Lipid profile particular	OSMF Mean value	Controlled group Mean value	t test	P value
Total count (TC)	135.4 (SD±8.7)	187.3 (SD±9.8)	-38.6	P<0.01
HDL	27.3 (SD±4.6)	37.2 (SD±2.3)	-18.7	P<0.01
LDL	97.2 (SD±12.3)	85.2 (SD±17.3)	5.5	P<0.01
VLDL	17.2 (SD±2.2)	39.3 (SD±7.1)	-28.9	P<0.00
TG	76.3 (SD±10.1)	118 (SD±18.3)	-19.4	P<0.00=

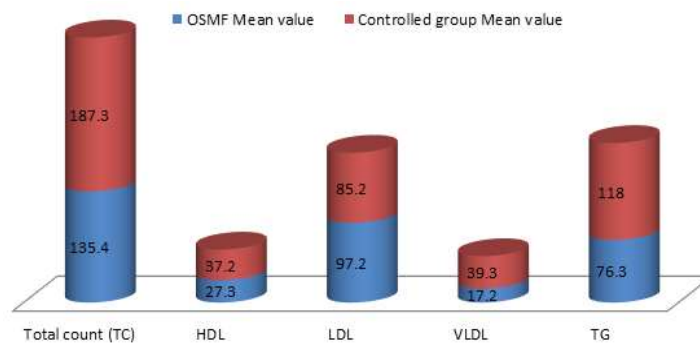


Table 1: Comparative study of lipid profile in OSMF and controlled (Normal) group

DISCUSSION

In the present study of lipid profile in oral sub-mucosal fibrosis in Kolhan belt of Jharkhand Population. When OSMF patients were compared with normal (controlled) group mean value of Total count in OSMF was 135.4 (SD±9.8), t test -38.6 p<0.01. In HDL study mean value of OSMF was 27.3 (SD±4.6) and in controlled group 37.2 (SD±2.3) t test -18.7 and p<0.00. In LDL study mean value of OSMF was 97.2 (SD±12.3) and controlled group was 85.2 (SD±17.3) t test 5.5 p<0.01. In VLDL study mean value OSMF was 17.2 (SD±2.2) and in normal group was 39.3 (SD±7.1) t test was -28.9 p<0.01. In TG study Mean value in OSMF was 76.3 (SD±10.1) and in normal group was 118 (SD±18.3) t test was -19.4 p<0.01 (Table-1). These findings were more or less in agreement previous studies^{5,6,7}. Chewing betel nut (areca), tobacco and tobacco products are the main cause of OSMF⁸. The histopathology of OSMF had various epithelial alterations rete-peg shapes and sub-epithelial deposition of dense band of collagen fibres. Epithelial alterations vary from atrophy with hyperplasia to hyperplasia or dysplasia. A shift of epithelial compliance in response to the increased connective tissue fibrosis and degradation lipids⁹. As lipids are essential for cell growth and division of normal and abnormal tissues. Lipids maintain the activity of membrane bound enzymes and stabilization of DNA helix. It is hypothesized that, inverse association between cholesterol concentration and the incidence of fibrosis leads to (a) lower the cholesterol values even before manifestation or detection of fibrosis may be the result of fibrosis which may leads to malignancy (b) Lower cholesterol values may precede the enhancement of oral fibrosis i.e., cholesterol serves as marker for variable in mucosal membrane of buccal cavity (c) Reduction in cholesterol values may precede the development of fibrosis which has bad prognosis¹⁰. Hence changes in lipid profile might be treated as early diagnose of malignant. Moreover in the present study majority of the patients belong to lower middle socio-economic status. Hence variations of lipid profile could be due to under nourished or malnourished patients which lead to less immunity in the patients. It may

enhance the high degree of fibrosis in oral mucosa in tobacco chewers.

SUMMARY AND CONCLUSION

The present study of OSMF in kolhan belt of Jharkhand population had lower serum lipid status which is a bad prognosis. As Kolhan are the Tribal population, majority of them are illiterate, hence awareness of hazards of tobacco and areca nut chewing is necessary to prevent irreversible fibrosis of oral mucosa. But this study demands further histo-pathological, nutritional, genetic, biochemical study because exact pathogenesis of OSMF is still un-clear. This research paper was approved by ethical committee of MGM Medical College Dimna Road, Mango Jamshedpur Jharkhand-831020.

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