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ORIGINAL ARTICLE

Association of Oral Lichen Planus with Dyslipidemia in Patients Of Rahim Yar Khan

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ABSTRACT

Introduction: Oral lichen planus (LP) is a chronic inflammatory condition and this inflammation leads to alteration in lipid metabolism and increase the cardiovascular risk factors.

Objective: To determine the prevalance of dyslipidemias in patient with oral lichen planus coming in dermatology outdoor of Sheikh Zayed Hoapital Rahim Yar Khan.

Methods: It was a case control study that was conducted at Department of Dermatology, Sheikh Zayed Hospital Rahim Yar Khan during October 2016 to April 2017. In this study there were total 50 cases of oral LP and 50 controls of both genders with age range of 15 to 60 years. The cases of both the groups underwent fasting lipid profile in terms to look for serum total cholesterol, triglyceride, LDL cholesterol and HDL cholesterol.

Results: In this study there were total 100 cases out of which 50 were cases of oral LP and 50 were controls. In cases groups there were 27 (54%) males and 23 (46%) females while in control group there were same number of males and females were taken with p= 0.85. The mean age in case group was 37.22±8.15 years while in control group was 35.66± 7.78 years while the mean BMI was 24.42±2.21 and 25.11±3.01 respectively. The mean difference in cases and controls in terms of serum total cholesterol, TG, HDL Cholesterol and LDL cholesterol was found statistically significant.

Conclusion: Dyslipidemias are common in cases with oral lichen planus and all its parameters have significant association with it especially TG.

Keywords; LP, Dyslipidemia, LDL, HDL, TG

INTRODUCTION

Lichen planus is derived from Greek word Leichen Planus meaning flat tree moss[1]. Lichen planus (LP) is a chronic inflammatory disorder involving skin and mucous membranes. It can involve skin and mucosae, nails and hair[2]. Most commonly involved mucosae are oral, genital, ocular and laryngeal[3]. Flexor surfaces of the body especially legs, forearms and wrists are the common one. The characteristic lesions are described by 6 Ps for their salient features i.e. polygonal, purple, pruritic, planar, papules and plaques[1].Wickham striae are white reticular pattern lines present on lesions of cutaneous lichen planus. These are also seen in oral lichen planus with violaceous background[4]. Underlying pathology is characterized by T cell mediated autoimmune response targeting basal keratinocytes trigerred by allergens, viruses and drugs[5]. Due to the chronicity and persistance of the disease it poses a great concern regarding diagnosis, treatment, complications and outcomes. There are many systemic diseases have been associated with lichen planus like hepatitis B, hepatitis C, diabetes mellitus, metabolic syndrome, hypertension, heart disease and hyperthyroidism[6,7].

Chronic inflammation leads to deranged lipid metabolism due to involvement of many euc6inflammatory markers mainly Interleukin (IL)-2, IL-6 and tumor necrosis factor (TNF) alpha.[5] Psoriasis is an infammatory conditon that almost has same course of disease and markers involved in pathophysiological mechanism as lichen planus. DM, HTN, obesity and dyslipidemias are well established associations of psoriasis as well .[8] Therefore, it is thought that LP is also associated with dyslipidemia. Dyslipidemias include elevated serum triglycerides, VLDL, LDL, apolopoprotein B and non- HDL cholesterol levels[7].

Studies done regarding this have shown mixed results. Few of them have shown significant association[6,7,8]. That's why this study is planned to look for the association of oral lichen planus with dyslipidemia in our population.

Objective: To determine the prevalance of dyslipidemias in patient with oral lichen planus coming in dermatology outdoor of Sheikh Zayed Hoapital Rahim Yar Khan.

MATERIAL AND METHODS

It was a case control study that was conducted at Department of Dermatology, Sheikh Zayed Hospital Rahim Yar Khan during February 2020 to August 2020. Total 100 cases were enrolled among which 50 were cases of oral LP and 50 were control. The cases and controls were selected on basis of non probability consecutive sampling. Then all these cases and controls underwent withdrawal of 5 ml of blood and they were assessed at department of Pathology for fasting lipid profile to look for serum total cholesterol, triglyceride, LDL cholesterol and HDL cholesterol. Patients were selected on basis of following criteria:

Inclusion criteria:

1 Both genders
2 Age: 15-50 years
3 Oral LP of at least 1 year duration for cases.
4 BMI: 18.5 to 29.9.

Exclusion criteria:

1 Prior history of co-morbid conditions like DM, HTN and thyroid disease.
2 Individuals with end stage liver or renal disease.
3 History of drug intake causing dyslipidemia, like retinoids, in last 6 months.

Statistical analysis: A sample of 50 patients in each group was selected. Both the groups were compared in terms of gender, age, BMI by using Chi Square and independent sample t test. They were also compared for lipid profile and post stratification t test was used to see the significance taking p value of ≤ 0.05 as significant.

RESULTS

In this study there were total 100 cases out of which 50 were cases of oral LP and 50 were controls. In case group there were 27 (54%) males and 23 (46%) females and same number of males and females were taken in control group . The mean age in case group was 37.22±8.15 years while in control group was 35.66± 7.78 years while the mean BMI was 24.42±2.21 and 25.11±3.01 respectively as in Table 1. Table 2 reveals the mean difference in cases and controls in terms of serum total cholesterol, TG, HDL Cholesterol and LDL cholesterol and all of these differences were found statistically significant as in table 2.

Table 1. Comparison between variables of two groups.

Variable	Case	Control	p value
Age (years)	37.22±8.15	35.66± 7.78	0.024
BMI	24.42±2.21	25.11±3.01	0.051

Table 2. Lipid profile between two groups

Lipid profile	Case	Control	Range	P value
TC	227.53±38.43	182.31± 48.32	<200 mg/dl	0.04
LDL-C	151.32± 31.03	113.32±27. 41	100-130 mg/dl	0.02
HDL-C	31.36± 6.83	47.12±4.55	40-50 mg/dl	0.04
TG	171.21± 26.43	103.11±24. 21	100-150 mg/dl	0.001

DISCUSSION

Oral lichen planus is well reported in out patient Dermatology departments all over the world. This is a chronic inflammatory condition lasting for months and years. Most of the acute and chronic inflammatory disorders show classical changes seen in lipid metabolism. These included the increased levels of serum total cholesterol, LDL cholesterol and triglyceride and reductions in HDL-Cholesterol levels. Such are the changes made by the body defense systems that help to lower down the toxicity rates of the causative agent and help in tissue repair. But if the inflammation becomes chronic, then the changes in the lipid profile become sustained and thereby augment the accumulation of cholesterol in cells and formation of lipid foam cells which in turn produce fatty streaks in the arterial walls. This eventually increases the occurrence of atherosclerotic plaques leading to cardiovascular disease in such patients. Also, increased reactive oxygen species and lipid peroxides may play a role in the pathogenesis of lichen planus.

Ying Jiey, Xiang Wenzhong et al independently searched 4 databases including PubMed, Embase, the Cochrane library and Web of medicine and found 200 relevant articles showing relation of lichen planus with dyslipidema[10]. Ozbageivan o, Alkarsu S et al also conducted a study and observed higher triglyceride, total cholesterol total cholesterol/ HDL-C and atherogenic indexes in all lichen planus subtypes while they observed lower HDL-C values in all lichen planus patients[11]. Ramesh A, Deeirani P et al in India conducted a study on association of cardiovascular risk and lichen planus. They found significantly higher common carotid artery mean intima-media wall thickness showing 28% lichen planus having more atherosclerosus compared to 2 % in controls. Dyslipidemia was detected in 42% of patients vs only 10% controls. 36% of patients had higher cardiovascular risk vs 8% in controls[12].

In India, Mushtaq S, Dogra D iet al found increased proportion of metabolic syndrome in patients of lichen planus i.e 29.5% vs 9.8% in controls, dyslipidemia was also found 70.5% in LP patients vs 42.6% in controls[13].

In a study done by Gupta S et al, they found that LDL cholesterol was significantly higher in cases of LP as compared to controls where its value was seen as 167.21±24.45 in cases as compared to 107.23±19.27 mg/dl in controls. However, in their study they found decreased TG levels in LP group as compared to controls[14].

In the present study we observed triglyceride value of 227.53±38.43 in cases vs 182.31±48.32 in controls and LDL-C values of 151.32±31.03 in cases vs 113.32±27.41 in controls. Also we observed decreased HDL-C value 31.36±6.83 in cases vs 47.12±4.55 in controls. LDL cholesterol and triglycerides in cases as compared to control and this difference was considered as statistically significant especially with TG with p= 0.001. There was also significant association seen in terms of low HDL cholesterol, where it was 31.36± 6.83 mg/dl in cases as compared to 47.12±4.55 mg/dl in control with p value of 0.04.

The above mentioned studies along with our study support the pathophysiology that the chronic inflammatory condition like LP increased the chances of dyslipidemias. Despite being significant there were few difference in terms of values and significance in our and the above-mentioned studies. This can be explained by the fact of difference in inclusion criteria as they used the cases that had co morbid conditions like DM and HTN as well which is another risk factor for dyslipidemias and were excluded in the present study. Moreover, the other epidemiologic factors like alcoholism and prevalence of obesity is more in western world as compared to Asian population.

CONCLUSION

Dyslipidemias are common in cases with oral lichen planus and all its parameters have significant association with it especially TG.

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