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Oral lichen planus and diabetes mellitus: Prevalence and clinical features in a Tunisian population

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Abstract

Background: Oral lichen planus (OLP) is a chronic inflammatory disease. It is characterized by multiple clinical presentations and periods of exacerbation and remission of symptoms of these lesions. The relationship between OLP and diabetes mellitus (DM) has been extensively studied, but with dissimilar conclusions.

The main aim of this study was to determine the prevalence of DM in a Tunisian population of patients with OLP. While the secondary objective was to describe features of these patients.

Materials and methods: Forty-four patients suffering from OLP according to clinical and pathological criteria proposed by the World Health Organization were enrolled for this study. Screening for diabetic patients was conducted according to the DM diagnosis guidelines suggested by The American Diabetes Association (ADA-1997). Inclusion and Exclusion criteria were taken into consideration. The variables considered for each patient were: age, gender, medical history, clinical forms, location and extension of the lesions.

Results: twenty-two point seventy two percent (22,72 %) of OLP patients were diabetics.

No significant differences could be observed in terms of mean age and clinical forms between diabetic and non-diabetic OLP patients. The extension of lesions was significantly higher in the diabetes -associated OLP group than the non-diabetic group.

Conclusion: Within the limits of this study it showed a high prevalence of DM in patients with OLP.

Keywords: Oral lichen planus; Diabetes mellitus; Prevalence; Tunisian population

1. Introduction

Lichen planus is a common inflammatory mucocutaneous disease that can affect the skin, hair, nails, and mucosal surfaces [1]. Oral lichen planus (OLP) is seen worldwide, and affects 2% to 5% of the general population [2]. OLP most often occurs in persons at 30 to 80 years of age, with a greater prevalence in female [3].

In 2005, the WHO in their Global Oral Health Program designated OLP a premalignant condition [3]. The reported OLP malignant transformation rates vary from 0.4% to 12.5%, with an overall average rate of 1.09% [3].

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The etiology and pathogenesis of the disease are not fully understood, but many causal factors have been associated, among which: genetic predisposition, anxiety, intestinal diseases, drugs, infections, dental materials, neoplasms, autoimmune diseases, diabetes and hypertension [1].

Several authors have investigated the prevalence of diabetes mellitus (DM) among OLP patients or the reverse association with dissimilar results [2].

The main aim of the present study was to evaluate the prevalence of DM in OLP patients. Secondary objective was to investigate epidemiological and clinical differences between OLP patients with or without DM.

2. Material and methods

The study was conducted at the Oral Medicine and Oral Surgery department, University Clinic of Dental Medicine of Monastir, Tunisia. It was a retrospective study in which all records of patients who had consulted this department between January 2014 and December 2017 was reviewed to look for patients with OLP.

Criteria for inclusion in the study were age >18 years, a histopathological diagnosis of OLP (signs of epithelial basal layer degeneration, with subepithelial band infiltration), clear results about diabetes and follow up ≥ 3 months. Records of patients with a diagnosis of lichenoid dysplasias or lichenoid lesions reactive to mechanical irritation and drugs, and incomplete or inaccurate records were excluded from the sample. A total of 44 patients who would be included in the study.

According to the American Diabetes Association (ADA-1997) the patient was considered diabetic if fasting blood sugar was more than 126 mg/dl.

OLP was classified into six clinical types according to Andreasen classification [4] that means reticular, papular, plaque-like forms as white aspect and atrophic, bullous and erosive forms as red aspect.

The following data were recorded: gender, age, clinical forms of OLP, lesions extension (number of affected site) and location. Data regarding diabetes were also evaluated.

Comparison of clinical presentation and lesions extension were conducted between diabetic patients and non diabetic patients. Regarding the clinical aspect, the presence or not of red lesions was conducted. Two surface involvement grades were considered (1: a single or two affected site(s); 2: three or more sites) to compare lesions extension.

Analysis of the study data was carried out using the software "Statistical Package for the Social Sciences" (SPSS version 18, SPSS Inc., USA). Qualitative variables were expressed in number and percentage. Quantitative variables were expressed as mean \pm standard deviation. Student's t-test and Pearson's chi-square test were used to compare the quantitative and qualitative variables, respectively. A value of ($p \leq 0.05$) was considered statistically significant.

3. Results

A total of 44 OLP patients were enrolled in this study.

Ten OLP patients (22.73%) were diabetics, all of them presented DM type 2.

There were more women than men among OLP patients (24 women and 20 male) and diabetic patients with OLP (6 women and 4 male) to.

The mean age of all patients and diabetic patients were 54.32 ± 11.62 and 57.5 ± 10.75 , respectively. Indeed, this difference didn't show any statistical significance.

Regarding the clinical forms, the reticular type of OLP was most common (56.8%) followed by atrophic aspect (52.3%), bullous – erosive lesions (34.1%), plaque-like form (25%) and papular type (15.9 %).

The most affected oral site was buccal mucosa (77.3%), followed by the tongue (31.8%). The gingiva (18.2 %) was affected more than lips (13.6%). Any palatal lesion was observed.

No statistically significant differences could be identified between DM associated OLP and non-DM-associated OLP patients in terms of clinical presentation, but according to the extension of lesion (number of affected sites), a statistically significant difference was observed. (table 1).

Table 1 Epidemiology and clinical features of included patients

Variables	Diabetics patients	Non diabetics patients	P Value
Gender			
Male	4	16	
Female	6	18	
Mean age (SD)	57,5 (10,75)	53,38 (11,86)	0.4
Clinical aspect			0.133
Erosive form	5	10	
Non erosive form	5	24	
Lesions extension			0.009
1 affected site	1	21	
≥ 2 affected site	9	13	

4. Discussion

In the present study, the prevalence of DM in patients suffering from OLP was 22.73%. Our result was in agreement with the results of Romero et al. [5] and Mostafa et al. [6] who found 27.4 % and 15.6% respectively. For these two studies, the diagnosis of OLP was confirmed by an histological examination and the diagnosis of DM was according to the ADA criteria, as in our study. However, these results differed from the result of Barbosa et al. [7] who reported that only 4 diabetic patients was found among 37 patients with OLP (10.8%) and from Grinspan et al. study [8] as reported that the prevalence of DM in OLP patients was 37.7%.

Several studies have been evaluated this association, namely descriptive studies, or analytical case-control studies for a better evaluation.

Some authors have sought to highlight the susceptibility of diabetic patients to present OLP through comparative studies between a diabetic group (G1) and a non-diabetic control group (G2), but the results were too controversial, we summarized some examples [9-12] in Table 2.

Table 2 Studies comparing the prevalence of OLP in DM and non DM patients

Studies	year/ Country	Number of diabetics (G1)	Number of non diabetics (G2)	Number of OLP (G1) (%)	Number of OLP (G2) (%)	Significant Association
Saini Rajan et al.	2010/ Malysia	420	420	2 (0,5%)	0 (0%)	No
Allini de Souza Bastos et al.	2011/ Brazil	146 (type 2)	111	9 (6,1%)	0 (0%)	Yes
Ali SA et al.	2013/ Malysia	391	391	2 (0,5%)	0 (0%)	No
Mohsen SF et al.	2014/ Pakistan	395	405	7 (1,8%)	4 (1%)	No

Other authors have studied this association by comparing the prevalence of DM in patients with or not OLP and the results were controversial, as well. Lundström et al. [13] reported that only one against eleven diabetic patients in non OLP patients and OLP patients respectively. This study [13] reported 27.5% as the prevalence of DM in OLP patients with a statistical significant difference. This result was in discordance with that of Xue et al. [14] who reported a prevalence equal to 11.6% and without any statistical significant association.

The inconsistency and discrepancy between these results is mainly due to the lack of standardization in the choice of protocols and methods. It can be correlated to the prevalence of each disease apart depending on the country. It has been proposed that the endocrine dysfunction in DM may be related to an immunologic defect that may also contribute to the development of lichen planus [2].

All of the diabetic patients in our study were type 2. This finding was similar to that of Vivek et al. [15] who reported that type 1 diabetes was less common than type 2 in patients with OLP. However, Petrou Amrikanou et al. [16] founded a higher prevalence of OLP in type 1 diabetes (5.76%) compared to type 2 diabetes (2.83%).

No statistical significant difference was found in our study between the mean age of diabetic and non-diabetic patients. This finding was different from that of Romero et al. [5] who concluded a significant difference between the average age of diabetic and non-diabetic patients with OLP. Christensen et al. [17] had emphasized the high frequency of diabetes in the elderly patients with OLP. Varma et al. [18] had noted that the average age of diabetic subjects was significantly higher than non-diabetic subjects who were all affected by LP.

There is also a great controversy on the clinical characteristics of OLP in diabetics patients. In our study, no difference was found when comparing the presence of the erosive form with other forms in diabetic and non diabetic patients. This finding was in disagreement with that of Torrente-Castells et al. [19] who mentioned that diabetic patients were more susceptible to the red type (erosive-atrophic) of OLP, and that of Bagan-Sebastian et al. [20] who concluded that prevalence of DM is more important for the group with the erosive form associated or not with the reticular aspect compared to the group with the isolated reticular form. These last two findings [5,6] were in opposition to that of Van Dis et al. [21] who failed to find any erosive lesions in eleven diabetic patients with OLP against seven reticular lesions.

According to lesions extension, a significant difference was found by comparing the number of oral sites affected by OLP between diabetic and non-diabetic patients. This result was in disagreement with that of Romero et al. [5] as failed to find a significant difference between diabetic and non-diabetic patients with OLP in terms of lesion extension and clinical forms, as well.

5. Conclusion

Despite the limits of retrospective observational studies, the present investigation revealed a relatively high prevalence of DM in OLP patients of the studied population. No relationship was observed between presence of diabetes and erosive form of OLP, however diabetic patients are more likely to present more extensive lesions.

Compliance with ethical standards

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Disclosure of conflict of interest

Authors declared they have no conflicts of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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