Original Study

ORAL AND TEMPOROMANDIBULAR JOINT SIGNS AND SYMPTOMS IN NEW CASES OF AUTOIMMUNE CONNECTIVE-TISSUE DISEASES BEFORE THE TREATMENT ONSET

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ABSTRACT

Background: Autoimmune connective-tissue diseases have showed increasing prevalence which results in increased prevalence rate of oral and maxillofacial manifestations.

Aim: The purpose of this study was to assess oral and temporomandibular joint manifestations among new cases of autoimmune connective-tissue disease before treatment onset. This descriptive cross-sectional study performed on 100 new cases of autoimmune connective-tissue disease that were simply selected among patients in clinics of rheumatological clinics and offices.

Materials & Method: Data were registered in the patients chart in which included: age, sex, type of autoimmune disease, location of lesions, oral and TMJ manifestation and abnormal findings in examination of TMJ. The data were analysed with SPSS soft ware and the results excluded with Chi-square and exact Fischer test.

Results: In this study 94% of patients were female and 6%were male with age average of 44years.Among these patients 89% had RA,8% had Systemic Lupus Erythmatosous (SLE),and 3% had polymyositis /dermatomiositis (PM/DM). About 13% of patients had oral lesions in which oral ulcer was the most prevalent one. There was a significant relationship between oral symptom with abnormal findings in TMJ examination (p value 0.0002) and with the type of connective tissue disease (RA, SLE). (p value 0.0107).

Conclusion: This study showed oral manifestation and TMJ abnormal findings. Therefore, according to the results, complete oral examination and treatment of oral lesions and TMJ abnormal findings from initial diagnosis is suggested.

Key words: Connective Tissue Disease, Oral Manifestation, Temporomandibular Joint.

Introduction

As the nomination reveals, in the autoimmune connective-tissue disorders caused by increased positive immune response, the connective tissue is the first target of the destruction. Connective tissue as a body frame has spread in the whole body, and is firstly affected. Most of these diseases consist of Discoid and Systemic Lupus Erythmatosous (DLE and SLE), Rheumatoid Arthritis (RA), Sjorgen's Syndrome, Scleroderma, Polymyositis (PM), Dermatomyositis (DM) and Mixed disease. The common point between these, is the antibody elevation against body tissues which is the reason of calling them "rheumatoid diseases".[1]

The increasing prevalence of these diseases indicates the importance of them. As reported more than 12% of individuals in united states and about 37 million people worldwide suffer from the connective – tissue disorders. The autoimmune disease of the connective tissue, have oral and maxillofacial manifestations which may be neglected. These lesions can cause buccal, lingual, gingival, dental, salivary and bony destruction and remain distinct oral lesions like non specific ulcers, discoid oral lesions, temporomandibular joint disorders, salivary gland disfunctions, speech and swallowing disabilities, lingual palate and lip telangectasia and oral soft tissue calcification.[2]

The least one is most seen in Sclerodermy[3,4] Palate and pharynx muscular weakness, erythmatosous and telangectatic patches, tongue stiffness caused by calcinosis are the most common symptoms in DM and PM.[4-6] Sjogren syndrome is the most common disease associated with RA specially in female. It has distinct oral symptoms like dry mouth and suffering from disabilities in swallowing, chewing and speaking. Dry and fissured lip, thick sticky salivary secretion, increased dental caries and fungal infections are other manifestations.[3,7-10]

Also in RA, chewing disabilities and temporomandibular dysfunction can cause pain and disabilities which simply decreases joint pain and disabilities.[8,11,12]

Materials and Method

This descriptive cross-sectional study was done on 100 new cases of identified connective tissue disorder before the treatment onset. They were referred from rheumatologic clinics and offices around yazd, iran during the first 6 months of the year 2011, from January to June. As said above, they shouldn't receive any medication; also they shouldn't have any other systemic disease. After recording demographic data (age, sex, type of the disease diagnosed) the patients were asked if they had any of these symptoms like burning and dry mouth, taste changes, anesthesia and other. The oral examination was done by tongue blades, mirror and a pen light and every ulcer, exophitic, red/white lesion was highlighted in the questionnaire.

In order to simplify the location of the lesion, the oral mucosa was subdivided into 4 groups:

1) Mouth floor and ventral surface of the tongue,

2) Palate and Tonsils,
3) Lip and Buccal Mucosa and
4) Gingiva.

After oral examination, the TMJ of every patient was examined to find out and record its unusual changes like click, crepitus, mobility (subluxation) pain and tenderness.

After examination and recording, the data were registered in the patients chart in which included: age, sex, type of autoimmune disease, location of lesions, oral and TMJ manifestation and abnormal findings in examination of TMJ. Data were analyzed with SPSS soft ware and results excluded with Chi-square and exact Fischer test.

The executive problem was the probability of medication prescription because of one organ or multi organ (renal, respiratory and gastrointestinal and…) damage.

Results

In this study 94%of patients were female and 6%were male with age average of 44 years. Among these patients 89% had RA, 8% had SLE, and 3% had polymyositis/ dermatomiositis. 87% patients didn't have any oral lesion and about 13% of patients had oral lesions in which oral ulcer was the most prevalent (7%) and the red-white lesion was after it, in the second step (6%).

About 54% of the cases were 25-39 and 46% were 40-55. About 94% of patients were female and 6% were male. According to the type of the disease, the prevalence percentage in SLE, RA, and PM/DM was 8%, 87% and 3% respectively. There wasn't any new case with Scleroderma or Sjogrens syndrome. About 85%of cases didn't have any oral complaint but 10% and 5% complained about burning mouth and change in taste sensation respectively. The patient didn't complain about pain and paresthesia. In the oral exam, 87% of the cases didn't have any oral lesion but 13% complained about oral ulcer (7%) and red-white lesion (6%). There wasn't any exophitic lesion detected.

According to the location of the lesion the percentage of involvements were 1%, 30%, 20%, 7% for mouth floor and ventral surface of the tongue, palate and tonsils, gingival, lip and buccal mucosa, respectively.

Oral Condition	Sex					
	Female		Male		Total	
	N	%	N	%	N	%
Without Lesion	82	87.2	5	83.3	87	87
Red And White	6	6.3	0	0	6	6
Ulcer	6	6.3	1	16.6	7	7
Total	94	100	6	100	100	100

p-Value 0.536

Table 1: Oral lesion prevalence in male and female with rheumatoid disease.

On the basis of chi-square test there wasn't a significant relationship between sex and amount of the lesion at the beginning of the diagnosis before treatment onset. [Table 1] But there was significant relationship between amount of the lesion and patients age, and the amount of lesion is affected by patients age, as in patients in 40-55 years ,the most lesions were detected. (p- value: 0.0445) [Table 2]

Oral Condition	Age					
	25 – 39		40 – 55		Total	
	N	%	N	%	N	%
Without Lesion	51	94.4	36	78	87	87
Red And White	2	3.7	4	8.6	6	6
Ulcer	1	1.8	6	13	7	7
Total	54	100	46	100	100	100

p- Value: 0.0445

Table 2: Type of Oral lesions in two age groups in patients with rheumatoid disease.

On the basis of Fischer test, there was significant relationship between type of the lesion and type of the autoimmune connective-tissue disease. As in SLE, DM and PM, the most lesions were red/white ones, and in RA patients ulcers were the most. (p-value: 0.028) [Table 3]

Lesion Type	Autoimmune connective-tissue diseases							
	SLE		RA		PM – DM		Total	
	N	%	N	%	N	%	N	%
Without Lesion	5	62.5	80	89.8	2	66.6	87	87
Red And White	2	25	3	3.3	1	33.3	6	6
Ulcer	1	12.5	6	6.7	0	0	7	7
Total	8	100	89	100	3	100	100	100

p-value: 0.028

Table 3: Oral lesions based on the disease type in patients with rheumatoid disease.

There was also a significant relationship between oral chief complaint and type of the connective tissue disease, as most of the SLE patients complained about burning mouth. (p-value: 0.0002) [Table 4]

Oral Chief Complaint	Type of connective tissue disease							
	SLE		RA		PM – DM		Total	
	N	%	N	%	N	%	N	%
Taste Change	1	12.5	4	4.4	0	0	5	5
Burning	4	50	6	7.6	0	0	10	10
Without taste change and burning	3	37.5	79	88.7	3	100	85	85
Total	8	100	89	100	3	100	100	100

p-Value: 0.0002

Table 4: Oral chief complaint due to type of the rheumatoid disease in patients before treatment.

On the basis of chi-square test there wasn't significant relationship between location of lesion and type of the connective tissue disease. (p-value: 0.14) [Table 5]

Lesion Location	Type of connective-tissue disease					
	SLE		RA		Total	
	N	%	N	%	N	%
Palate & Tonsils	2	66.6	1	11.1	3	25
Lip & Buccal Mucosa	1	33.3	6	66.6	7	58.3
Gingiva	0	0	2	22.2	2	16.6
Total	3	100	7	100	12	100

p-Value: 0.14

Table 5: lesion location due to type of therehumatoid disease before treatment.

Again chi-square test showed that there is a significant relationship between unusual changes in TMJ and type of the connective tissue disease as in RA patients it was associated with subluxation and in SLE patients the TMJ movements were associated by sounds. (p-value: 0.0107) [Table 6]

Abnormal changes in the TMJ Exam	Autoimmune connective-tissue diseases					
	SLE		RA		Total	
	N	%	N	%	N	%
Without Changes	1	12.5	7	7.8	8	8.2
TMJ Sound Existence	6	75	22	24.7	28	28.8
Subluxation	1	12.5	60	67.4	61	62.8
Total	8	100	89	100	97	100

p-Value: 0.0107

Table 6: Abnormal changes in the TMJ exam due to type of the rheumatoid disease.

In this study there was a significant relationship between unnormal TMJ changes and type of the connective tissue disease. In clinical examination about 67% RA patients had subluaxion and in 75% of Lupus patients the movements were associated with sounds.

Discussion

The oral health and its contents are related to the whole body health, directly which is because of hypervascularity, lymphatic and neurotic pathways. In other word, it can be said that the healthy oral condition can be a valuable criteria of the general health. Several systemic diseases result in different changes and lesions in the oral mucosa. And identified characteristics of each disease can direct us to the early diagnosis in order to release disease side effects.[4,10]

In current study autoimmune patient with connective tissue disorders, were evaluated. They were about 100 who were referred from the rheumatologic clinics and offices. They were mostly 54% in range of 25-39 years and 46% in 40-55 years, which was quietly similar to other studies, in Atkinson *et al*[3] study about 70% of the cases were female and 30% were male. In Lourenco *et al* [13] study about 74% of cases were female and 26% were male. Also in Larheim *et al*[14] study the RA age range was between 14 to 40 years.

In the current study there was no significant relation between the lesion amount and patient age (p-value: 0.536) which means that before the treatment oral lesion amount didn't depend on the patient sex except for the patients between 46-55 years. According to this knowledge the most lesions were seen in the age of 40-55 years. In the studies on the similar subjects, the role of age wasn't assessed.

Others have also reported that the prevalence of lupus erythematosus is higher in Women.[15] Vagra *et al*[16] claimed that the mixed connective tissue diseases- a multi system disease- can convert into every connective tissue disease. In the current study 37.5% of lupus patients had oral lesion from which 25% were related to white and red lesion and 12.5% to ulcers. Konttinen *et al*[17] study on lupus patients, as the lichen planus and lupus were synchronous and was identifiable with lupus, they considered lichen planus as the side effect of the lupus.

Simoes *et al*[18] described the term "lichenoid mucositis" in patient with Lupus. Monash *et al* [11] reported the prevalence of oral lesion in Lupus patients about 50%.

Boostma *et al* in a cross sectional study concluded that lichen plunus as a probable lesion in patients with systemic lupus erythematosus so they suggested that blood profile, histopathologic characteristics (Haemotoxylin and Eosin, direct immunofluorescence) is necessery for diagnosis and follow up.[19]

Johnson *et al*[20] reported more prevalence of oral lesion (about 52%) which consists of ulcer, angular chilitis, mucositis and glossitis. The reason of such a differences can be considered because of the differences in study method, sampling and the type of the connective tissue disease. They complain about burning mouth (50%) and change of taste sensation (12.5). In current study patients myositis and DM complain about nothing, but in studies[21,22] painful lesions has been reported as a part of DM.

In this study it hasn't found any relation between the location of the lesion and the type of the disease (p-value = 0.14). In Lupus disease the common involvement location was the palate. This result wasn't inconsistent with Lourenco finding.

In this study there was a significant relationship between abnormal TMJ changes and type of the connective tissue disease in clinical examination about 67% rheumatoid arthritis patients had subluaxion and in 75% of Lupus patients the movements were associated with sounds.

In Ackerman[11] study use of tomography revealed that in RA patients about 2.3% had erosive TMJ changes. He claimed that the signs are related to the degree of the involvement.

Sodhi *et al* claimed that CT Scan has some limitation is in bone alterations. That is while CBCT successfully can be prescribed and suggested.[23]

Larheim *et al*[14] observed distortion or destruction of TMJ disk in MRI of RA patients. In above studies they had used the radiographic examination but in current study everything was examined by clinical examination perhaps these data is not comparable with our conclusions in the current study.

In Poveda *et al* [24] study as a review on prevalence of sign and symptoms in TMJ disorders. As the results were reported in wide range, it is not accurately reliable.

In LeResche *et al* [25] study, pain and TMJ sounds was the most common symptoms in 15%of the cases over 18 years. In this study patients didn't complain about pain and tenderness. May be it was probably because of examination at the beginning of disease identification.

In Maksimovski[26] on the Lupus patients 75% of patients had TMJ involvement and in 60% of this joint is the only joint involved. Assessment on the above variants wasn't done.

Conclusion

As the results refers to the time before treatment onset, lots of symptoms can be find after and during treatment. Interestingly it can be said that although in the first step of the disease oral chief complaints like burning mouth taste changes and oral lesions (ulcer, red/white lesion) happen in low prevalence, diagnosis, treatment and side effects of the disease can be taken into consideration.

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