CLINICAL STUDY OF ORAL PATHOLOGICAL MANIFESTATIONS IN RELATION TO SOME SYSTEMIC CONDITIONS IN AN IRAQI SAMPLE [+]

Sabah . M. Dhamad [*] **Bushra . H. Sadik** [**] **Zainab Zamel** [***]

Abstract

Sixty six patients as a sample of an Iraqi people were selected from cities in east of Baghdad, the male patients were (36) , while the females were (30) patients , they forming 54.5% and 45.5% respectively from the total examined patients with different oral pathological manifestations , their ages ranged between (25 – 60) years during one year period . The patients with oral pathological manifestations were selected in a way that all of them suffered from one on more systemic diseases which were diagnosed by hospitals , private clinics and medical centers , these systemic diseases were confirmed by medical reports .

These oral pathological manifestations were divided into five groups according to the type of oro-dental lesions . Medical history were taken from the examined patients , it was found that every patient with oral pathological manifestations suffered from one on more systemic diseases , which were under medication .

The previous laboratory investigations and other tests related to such systemic diseases were taken in consideration in order to compare them with the next laboratory investigations and other needed tests .

Dental management and treatment started to every group of oro-dental lesions , these procedures of dental treatment included , medication to some oral pathological conditions , surgical interference to some oral cases , improvement of oral hygiene , extraction of mobile and badly carious teeth , construction of dental bridges , management to oral ulcers and treatment of gingival and periodontal diseases in addition to other dental treatment . The patients with the systemic diseases were sent again after the recovery period of dental treatment to the medical laboratory and other needed investigations by the consultation of the special physicians , the new results referred to the presence of mild improvement when were compared with the previous results of the systemic diseases by which were diagnosed, also this study revealed that healing and good improvement

[+] **Received on 23/8/2010 , Accepted on 31/10/2011 .**

[*] **Lecturer / Institute of Medical Technology**

[**] **Assistant professor / Institute of Medical Technology**

[***] **BDS in the Institute of Medical Technology**

appeared in the oral pathological manifestations . This study showed that the most common systemic disease associated with the oral pathological manifestations was diabetic mellitus disease and the most common oral pathological manifestations was represented by periodontal disease .

This study appeared that strong relationship was present between the oral pathological manifestations and the associated systemic diseases and the treatment of the oral lesions may aid in regulating and controlling the serious factors of the systemic diseases .

دراسة سريرية لعلامات مرضية فموية ذات علاقة بحالات مرضية جهازيه لنموذج مرضى عراقيين

صباح مختار ضمد بشرى حمزه صادق زينب زامل حمدان

المستخلص:

تم اختيار ستة وستين مريضاً عراقيا من بعض مناطق شرقي بغداد وكان عدد المرضى الذكور (36) مريضا وعدد المرضى الاناث (30) مريضة مشكلين 54,5% , 45,5% على التوالي من مجموع المرضى المفحوصين , تتراوح اعمار هؤلاء المرضى المصابين بأفات مرضية فموية من (25 – 60) سنة واستمرت هذه الدراسة لحوالي سنة واحدة . تم اختيار هذا العدد من المرضى حيث ان جميعهم يعانون من اعراض فموية يشترك فيها مرض او اكثر من الامراض الجهازية المزمنة والتي هي مشخصة عن طريق المستشفيات , العيادات الطبية الاختصاصية والمراكز الطبية المختلفة ومثبتة بتقارير طبية . تم تقسيم المرضى اصحاب العلامات المرضية داخل الفم الى خمسة مجاميع حيث تم اخذ التاريخ المرضي للمرضى المفحوصين وقد وجد ان جميع هؤلاء المرضى لديهم مرض او عدة امراض جهازية مزمنة وعلى هذا الاساس تم اختيار هذا النموذج المرضي , تم الاخذ بنظر الاعتبار نتائج الفحوصات المختبرية للامراض الجهازية المزمنة لغرض المقارنة بالنتائج المختبرية اللاحقة , معظم هؤلاء المرضى يتعاطون ادوية الامراض المزمنة . تم معالجة الاعراض الفموية لكل مجموعة وتشمل هذه الاجراءات معالجات طبية لبعض هذه الامراض , التداخل الجراحي لبعض الحالات , تحسين نظافة الفم , قلع الاسنان المتحلحلة والاسنان ذات المصدر الالتهابي , معالجة التقرحات الفموية والتهاب اللثة , تركيب الجسور المتحركة والثابتة فضلاً عن اجراءات اخرى لكل حالة . وبعد انتهاء فترة الشفاء لهذه العلامات المرضية داخل الفم تم ارسال المرضى الى المختبرات الطبية والفحوصات المطلوبة لكل مرض مزمن وبأستشارة الاطباء الأخصائيين وكانت النتائج تشير الى ان هناك تحسناً ضئيلاً في النتائج المختبرية والفحوصات الاخرى عند مقارنتها بالنتائج السابقة التي بموجبها تم تشخيص الامراض المزمنة الجهازية , كما ان هناك شفاء او تحسناً ملحوظاً في الاعراض الفموية . من خلال هذه الدراسة وجد ان اكثر الامراض المزمنة الدراسية شيوعاً هو مرض السكري في حين ان اكثر الاعراض المرضية داخل الفم استجابة لتلك الامراض الجهازية هي امراض اللثة والانسجة الرابطة , كما اشارت هذه الدراسة الى ان هناك علاقة بين الاعراض المرضية داخل الفم والامراض الجهازية وقد تكون هذه الامراض هي المسببة لتلك الاعراض الفموية كما وجد ان معالجة الاعراض الفموية وحسن التعامل معها له تأثيراً على تنظيم وتحديد العوامل الضارو للأمراض الجهازية المزمنة .

Introduction:

The oro-dental manifestations in some systemic diseases may appear clinically according to the severity of the disorder , some dental and oral soft tissues defects were infrequent , while others were always present . Sometimes these oro-dental manifestation may play a critical role in the detection and diagnosis of the disease , in addition to that the dentist may be the first person who meet the patient with such systemic disorders , and show the importance of accurate oro-dental assessment and analysis in pointing towards a diagnosis . An early correct diagnosis , beside defining the disease , enables the provision of effective therapy[1] .

The mouth cannot physically be separated from the rest of the body and the mouth often reflects a systemic condition existing elsewhere in the body as oral manifestation , that means the mouth may show pathological manifestation for many systemic diseases .

The classification of such systemic diseases which reflects an oro-dental manifestation inside the mouth can described as follow :

a- Infectious diseases including bacterial , fungal and viral infection.
b- Vitamin diffiency such as vitamin B and C diffiency .
c- Skin disorders such as lichen planes disease .
d- Blood disorders such as : hemophilia , iron diffiency anemia , pernicious anemia and leukemia .
e- Endocrine disorders such as diabetic mellitus disease .
f- Allergic reaction to the drugs such as allergy to penicillin .

Oral flora may show some changes in women in respect to genetic and hormonal differences which present between woman and men . On the link between oral health and general health the evidence supported that an oral diseases association with the occurrence and severity of systemic diseases [2] . Also there was evidence that a history of chronic periodontal diseases can prevent control diabetes suggesting that periodontal diseases infection may have systemic repercussions [3] . Multi factorial causes share some of their risk factors such as age , lower socio-economic status , smoking and psychological factors such as stress , but oro-dental lesions had been investigated as a potential factor contributing to the onset and development of systemic diseases [4] . Evidence indicated that people with oral diseases such as periodontal diseases have an increased risk of mild to moderate risk of having a stroke [5] .

Periodontal and other oral diseases and rheumatoid arthritis have very similar pathologies, however scientists think a bacterial infection may trigger the disease process in some of the estimated 2.1 million people with rheumatoid arthritis [6] .

The current study aimed to identify the relationship between the presence of pathological oral lesions and the possible systemic diseases related to such oral manifestations , also to show the effect of the treatment of systemic diseases or during the treatment in the condition status of these oral lesions and finally to appear the effect of improvement and treatment the oral lesions in controlling and reducing the mortality factors of systemic diseases .

Patients and Methods

1- Patients :-

After collecting a large number of oro-dental patients from public health clinic and private clinics for special dentists in Bladeyate , Jamella cities and adjacent areas in Baghdad . the oro-dental cases were collected in a way that it may serve this study as that was possible .

Sixty six patients with oro-dental lesions were chosen , thirty six were male patients and the others were thirty female patients , their ages ranged between 25 – 60 years , during one year period .

Those sixty six oral patients either were diagnosed by special dentist , dental health centers and few cases were diagnosed in diagnosis department in the College of Dentistry University of Baghdad through histo pathological diagnosis . Those oro-dental cases were categorized into five groups according to the type of oro-dental lesions .

Table (1) showed name of oral disease , the number and percentage for each male and female oral patient

No	Name of oral disease	No of male patients	% No	No of female patients	% No	Total %	Total no of oral patients
1	Pyogenic granuloma	3	37.5	5	62.5	12.3	8
2	Oral white lesions	2	33.4	4	66.6	9.7	6
3	Gingival and periodontal diseases , loose and lost of teeth.	25	58.1	18	41.9	63	43
4	Recurrent aphthous stomatitis	3	75	1	25	7	4
5	Burning mouth syndrome	3	60	2	40	8	5
Total		36	54.5	30	45.5	100	66

2- Methods :-

After dividing the oro-dental lesions patients into five groups according to the examined oral lesions and to consider the relationship between oral manifestations and the systemic diseases , we used the following steps :

a- The most investigations used in the current study by the help of physicians were :

1- Fast blood sugar .
2- General blood examination .
3- General urine examination .
4- Hepatic or liver function test .
5- Hormonal function (such as SH3 , T1 and T3) .
6- ESR estimation .
7- Chest X ray , and other investigated methods like ECG and Echo for heart problems .

b- The following procedures were applied :

1- All the included examined patients with oral lesions were asked about their general health , and it was shown that they complained from one or more systemic diseases according to previous medical reports .

2- Every group of the diagnosed oro-dental lesions included in this study was treated by dentists to clear the oral health such as , extraction , filling , medication and surgical interference to some cases.

3- The included patients in this study were sent to the medical laboratory and other needed tests to confirm the previous diagnosis of the systemic diseases , detection any sign of new systemic diseases and to compare the new results with previous one after the recovery period of dental treatment and management .
4- Then the following procedures were done to determine :
a- The relationship between the included oral lesions and the associated systemic diseases .
b- The effects of the healing or recovery of the oral diseases on controlling and regulating of the serious factors of the systemic diseases and the effects of that in relieving the oral manifestations .

Results :

Many systemic diseases can share in causing oral pathological manifestations but the most important of them were :
1- Diabetic mellitus disease .
2- Cardio vascular diseases .
3- Respiratory diseases .
4- Arthritis diseases .

The examined oral lesions were :

1. Pyogenic granuloma :

Three male patients and five females formed 12.3% of the total examined cases , their ages ranged between 29 – 52 years .

All those patients with pyogenic granuloma suffered from one or more systemic diseases which were diagnosed previously by general hospitals , private clinics and medical centers .

Diabetic mellitus disease , arthritis diseases , respiratory diseases were the most common , in addition to other diseases . Dental treatment and management started to pyogenic granuloma by using antibiotic drugs , mouth wash , and some cases needed surgical interference to remove the granuloma . After the recovery period for oro-dental treatment and management , the laboratory investigations and other needed tests were done for such systemic diseases , slight improvement in the results were detected in comparison with the previous one . More healing with marked improvement in the examined patients with pyogenic granuloma occurred , especially after the treatment and starting of the systemic diseases medication , and it is more significant in male patients .

2- Oral white lesions :

Two male patients and four females forming 9.7% from the total examined patients , their ages ranged between 35 – 55 years , the white lesions were mostly present in buccal mucosa , tongue , lower lip and palate . The patients suffered from different diseases such as , anemia , candidiasis , healed TB , inflamed salivary gland ducts , nasal obstruction and breathing from the mouth . The most common systemic diseases associated with this type of oral lesions were diabetic mellitus disease , cardio vascular diseases , arthritis diseases and respiratory diseases .

Dental treatment for the examined patients with oral lesions was done by removing or controlling the possible causes for such oral lesions with conservative treatment , after the recovery period of oral white lesions , laboratory investigation and other tests were achieved for the systemic diseases , the results revealed also simple improvement than previous one , while slight to moderate improvement in the oral white lesions was detected when the included patients were re examined and the improvement was more in female patients .

3- Gingival and periodontal diseases , loose and lost of teeth :

Forty three patients , 25 were males while 18 were female patients , all of them complaining from gingival and periodontal diseases in addition to loose and lost of teeth , they formed more than 63% of the total examined patients , their ages ranged between 25 – 60 years . Diabetic disease forming more than 70% among the other associated diseases which may cause these oral manifestations . The other systemic diseases which were found were cardio vascular diseases , Respiratory diseases and arthritis diseases .

Dental treatment were applied by medication , mouth wash , gingivoctomy , extraction of some mobile and badly carious teeth and constriction of mobile and fixed bridges . After the recovery period of the dental treatment , the results of fast blood sugar tests revealed improvement than previous results by which the diagnosis of the systemic diseases depend on . The healing and improvement of the oro-dental lesions was significant and clear in this type of oral diseases , and was more in females than in males .

4- Recurrent aphthous stomatitis :

Four patients with this type of oral lesions , three of them were males , and only one female , forming 7% of the total examined patients , their ages ranged between 25 – 60 years . The aphthous stomatitis appeared in the lower lip and buccal check . The associated systemic diseases were diabetic mellitus , psychological disorders and cardio vascular diseases , these diseases formed more than 90% among the other diseases .

The aphthous stomatitis were treated either by lidocaine spray , topical steroid or tetracycline ointment , after the recovery period of oral treatment , the laboratory investigations and other needed tests revealed mild improvement in diabetic mellitus and cardio vascular diseases when the new results were compared with the previous results by which the diseases were diagnosed , also the improvement in the oral aphthous stomatitis ranged between good to moderate when the involved patients were re examined and the recovery was significant in both sexes , slightly more in male patients .

5- Burning mouth syndrome :

Five patients with BMS were included in this current study , 3 of them were male patients while the others were 2 females forming 8% of the total examined patients , they were in different age groups , mostly more than 40 years . The burning sensation was in the tongue and lips , they were associated with different diseases according to the medical reports from hospitals and private physicians , the most common diseases were diffiency in vitamins and minerals , psychological and emotional stress , cardio vascular diseases and respiratory diseases in addition to sore tongue and hyperglycemia . Dental treatment started by removing the possible causes , mouth wash , sedative drugs , medical treatment such as giving vitamins and irons , after the recovery period of dental and medical treatment , the important diseases were sent to the laboratory investigations and other needed tests to evaluate any improvement in such systemic diseases which was non-significant or very mild , while the improvement in the BMS in the examined patients of this group was significant and this improvement was more in females than in male patients .

Table (2) illustrated the most fourth important systemic diseases associated with examined dental lesions and the % which was formed .

Name of the systemic disease	The % for each one
1- Diabetic mellitus disease .	69
2- Cardio vascular diseases .	35
3- Respiratory diseases .	36
4- Arthritis diseases .	30

Table (3) showed the percentage of improvement in examined oro-dental lesions according to the sex of the examined patients .

Name of oro-dental diseases	% of improvement in male patients	% of improvement in female patients
Pyogenic granuloma	65	60
White oral lesions	50	58
Gingival and periodontal diseases and loose and lost teeth	70	85
Recurrent aphthus stomatitis	60	70
Burning mouth syndrome	70	65

So the difference in improvement was non significant on both examined male and female oro-dental patients lesions .

Discussion :

In the current study we exclude the pregnant women , patients with serious systemic diseases and some oro-dental lesions which may had no relation with systemic diseases in addition to some patients who were not fit to such studies .

The oral complications of uncontrolled systemic diseases are affected by necessarily limited and treatment of oral pathological manifestation such as periodontal diseases , burning mouth syndrome and poor oral hygiene , so systemic diseases effected the dental and soft mucous tissues reaction of the oral cavity causing the presence of oro-dental lesions and any improvement and dental care may be controlling and reducing the serious factors of the systemic diseases [3] , that was in agreement with the results of the current study . there was also evidence that a history of chronic periodontal diseases can regulate the controlling of diabetes suggesting that periodontal diseases infection may have systemic repercussions [3,4].

This recent study appeared clearly that there were a relationship between some oral lesions and certain systemic diseases which reflected direct effects on the mouth as oral pathological manifestation , these systemic diseases which appeared during the current study and had a high percentage of presence and association with oral pathological manifestation were :

1- Diabetic mellitus disease .
2- Cardio vascular diseases .
3- Respiratory diseases .
4- Arthritis diseases .

Other systemic diseases may take less role in causing oral pathological manifestations or may had no effects or relation .

1- The oral lesions and diabetic mellitus disease link :

American diabetes association in their 2003 report on the diagnosis and classification of diabetic mellitus disease , periodontitis was often found in people with diabetes , the American academy of periodontology in their paper acknowledge declared that there are bi-directional relationships between periodontal diseases and diabetes and also periodontal diseases , periodontal infections and general bad oral health may increase insulin resistance lead to a worsening of the diabetic state and increase the risk for diabetic complications , several studies included controlling and supporting the hyperglycemia , that with mechanical therapy combined systemic tetracycline antibiotic may improve the hyperglycemia control [7]

A 2006 meta-analysis examined the extent and severity of periodontal diseases between diabetes and non-diabetes , the meta-analysis based was International studies including 18 cross sectional comparative studies , 3 prospective cohort studies and baseline data from two clinical trials , comparing oral hygiene , gingival and periodontal status , the study showed the severity of periodontal diseases in diabetics was significantly higher compared with non-diabetes , but the extents of the disease was the same in both groups , the average between diabetes and non-diabetes was significant , the gingival index was also significant , but the calculus index was not significant that was agreed with our results in the current study , in 2006 systematic review and a review of the literature in 2004 which includes a large number of studies supports between periodontal diseases and diabetes , the relationship appeared to be by-directional and possibly a cause affected the relationship . That was poor glycemic control may be a risk factor for periodontal diseases , periodontal diseases may have an adverse effects in glycemic control .

The prevalence of diabetes in the population may be increased over time and small reduction , in addition periodontal diseases in person with diabetes may have potentially great implications for public health , a call for periodontal prevention and treatment program for persons with diabetes , regardless of income level .

Our study depended only on the relation between oral lesions and diabetic mellitus disease. For at least 50 years oral lesions have felt that people with diabetes tend to have more severe periodontal diseases , can impair the body's ability to process or use insulin , so if you control the infection , it might be easier to control blood sugar , also diabetic control reduced the risk for eye , kidney and nerves . Double-blind study confirmed that periodontal therapy (scaling , root planning and antibiotic therapy) leaded to more improvement in glucose control other researchers showed that improved glucose control resulted from mechanical periodontal therapy combined with antibiotic therapy , also poor glycemic control is recognized as a significant risk factor for complications related to diabetic such as renal failure , blindness , heart diseases and blood vessels disorders [4] .

One of the mechanisms to explain the relationship between diabetic mellitus and oral diseases specially periodontal diseases , so the presence of periodontal diseases may induce state of chronic systemic inflammation as demonstrated by the increase in the C-reactive protein , IL-6 and fibrinogen levels found in patient with periodontitis , periodontal infection may elevate the state of systemic inflammation and exacerbate the resistance to insulin to be processed and the inflammatory process induced this resistance . Furthermore , it may induced increased level of IL-6 and TNF-a which is similar to obesity inducing the resistance to insulin [8] .

2- The oral lesions and cardio vascular diseases link :

Cardio vascular diseases are group of diseases that include congestive heart failure , cardiac arrhythmias , coronary artery diseases (including atherosclerosis and myocardial

infarction) . Cardio vascular diseases is characterized by the deposition of atherosclerotic plagues on the inner most layer of walls of large and medium sized arteries . Several mechanisms that could explain this association have been investigated .

The host response to the presence of some oral lesions pathogens may trigger the production of inflammatory mediators such as , c-reactive protein , TNF-a , IL-1bB and IL-6 which can accelerate the progression of pre-existing atherosclerotic plagues [9] . And this mechanisms was related to an increased number of adverse cardio vascular centers [10] . A systemic review published in 2003 studies , the evidence supporting the association between periodontal diseases and cardio vascular diseases , three human studies were selected , the authors concluded that periodontal diseases may be modestly associated with atherosclerosis , myocardial infarction and cardio vascular events , other three systemic reviews [11] , reported a modest but significant association between cardio vascular diseases and periodontal diseases , that was agreed with our result that many cases of periodontal diseases associated with cardio vascular diseases .

Periodontal treatment can decrease the risk for adverse cardio vascular events . Cardio vascular events may take several years to occur so the possible benefits of periodontal therapy were difficult to observe in interventional studies . Some investigations reported the effects of periodontal treatment on surrogate end points such as c-reactive protein, which is associated with Cardio vascular diseases [12] .

A recent systemic review concluded that there is no evidence that periodontal treatment can significantly reduce c-reactive protein levels , that was disagreement with our result which investigated that periodontal diseases treatment reduced or controlling the Cardio vascular status

Few studies regarding this association have been conducted in the Brazilian population, one case-control study and two cross sectional studies were retrieved from the mid-line the case control study conducted in southern Brazil found a significant association between periodontitis and acute coronary syndrome [13] .

One cross sectional study observed significant association between periodontal diseases and severe obstruction of coronary artery , all mentioned cases did not presented a multivariate analysis to investigate the association between the two conditions [14] , while in our current study there was slight to moderate relief and control according to the physician's reports and patient's complains that means there is association between oral health and cardio vascular diseases .

3- The oral lesions and respiratory diseases link :

Respiratory diseases is the term for diseases of the respiratory system including lung , pleural cavity , bronchial tubes , trachea and upper respiratory tract . They range from a common cold to life-threatening conditions such as bacterial pneumonia . There is increasing evidence that a poor oral health can predispose to respiratory diseases , especially in high-risk patients . The oral cavity is contiguous with the trachea and may be a portal for respiratory pathogen colonization . Dental plaque can be colonized by respiratory pathogens [15] . Which may be aspirated from the oro pharynx in to the upper air way and then reached the lower air way and adhere to bronchial or alveolar epithelium [16] .

A recent systematic review investigated , if there was an association between oral health and pneumonia or other respiratory diseases [17] . The authors reviewed 19 studies that met the inclusion criteria and concluded that there is fair evidence of an association between chronic pulmonary disease and oral health , the authors also concluded that improved oral hygiene and

professional oral health care reduced the progression or occurrence of respiratory diseases , among high risk elderly adults that was similar to our results in our current study . A recent prospective study [18] , conducted with 697 elderly individuals observed that the adjusted mortality due to pneumonia was 3.9 times higher in subjects with periodontal diseases , that was in agreement with our results that the oral health condition affect the cardio vascular status according to recent study .

The oral cavity serves as reservoir for respiratory pathogens so oral hygiene interventions may reduce colonization by these pathogens and consequently decrease the risk for pneumonia specially in high risk population .

A study was conducted in 2003 [19] , A meta-analysis on 5 intervention studies revealed that oral interventions improving oral hygiene through mechanical and or chemical disinfection reduced the incidence of nasocomial pneumonia by an average of 40%, a recent multi-center trail assessed the efficacy of a 0.2% chlorohexidine gel in the reduction of the rate of pneumonia in 228 non-edentulous patients requiring endo tracheal intubation and mechanical ventilation [20] . Although the intervention significantly decreased the oro pharyngeal colonization by aerobic pathogen , no significant reduction in the incidence of respiratory infection was observed , so 70% of the bacteria isolated from the tracheal aspirate were also found in the dental biofilm . The authors concluded that dental biofilm could act as a reservoir for respiratory pathogens , that is agreed with the results of the current study regarding the relationship between respiratory system infection and the oral hygiene of the patient .

4- Oral lesions and arthritis diseases link :

Studies that have compared periodontal disease in healthy persons to juvenile arthritis patients (rheumatoid arthritis in patients 16 years old and younger) , found that juvenile arthritis patients had more periodontal attachment loss even through they had similar levels of plaque and bleeding . This shows that the association between periodontal disease and rheumatoid arthritis exists in young patients as well .

This recent study revealed that there was a relationship between oro-dental lesions and rheumatoid arthritis in any age of the patient [21] .

Conclusions :

1- This study revealed that many systemic diseases may cause different oral pathological manifestations .

2- During this recent study , it has been found that periodontal diseases was the most common oral pathological manifestations for the important systemic diseases while the diabetic mellitus disease, respiratory diseases , arthritis and cardio vascular diseases were the most common diseases associated with these oral pathological manifestations .

3- This current study proved that more care and treatment for the oral pathological manifestations helped in regulating and controlling the serious factors of some systemic diseases , also good and early treatment for such systemic diseases helped in the healing and recovery of the oro-dental lesions .

Suggestions :

1- Such similar studies needed more cooperation between the authors , special physicians and medical laboratories .
2- Such studies were useful to the patients and physicians to evaluate the extent and the improvement of the diseases and to follow the healthy conditions of the systemic diseases , so we need more similar such studies .

References :

1- HuCC , King DL , Thomas HF , Simmer jp , A clinical research protocol for characterize patients with hypophosphatasia , pediatr Dent ; 18 ; 17-22 : 1996 .
2- Lux , Lavigne S ; your mouth-portal to your body ; CDHA position paper on the links between oral health and general health ; part II ; probe 38 (4) ; 155 – 71 : 2004 .
3- Ryan ME , Carnu O , Kamer A , the influence of diabetes on the periodontal tissues ; JADA ; 134 (supple) ; 345 – 405 : 2003 .
4- H, tenenbaum , Mr . golder bery ; patients with diabetes and periodontal diseases ; J can Dent Assoc 72 (1) ; 38 – 39 : 2006 .
5- Campus G , Salem A , Uzzau S , Bald oni E , Tonolo G ; diabetes and periodontal diseases; periodontal ; 76 (3) ; 418 – 25 : 2005 .
6- Khader Ys , Dauod As , El . Qaderi SS , Alkafajei ; periodontal status of diabetes compared with non diabetes ; a meta – analysis ; J diabetes complications ; 20 ,1 ; 59 – 68 : 2005 .
7- Clanciola L , Park BH , Bruck E , Mosovich L ; prevalence of periodontal diseases in diabetes Miletus ; J am Dent Assoc ; 104 (5); 653 – 60 : 1982 .
8- Nealey BL , Ocanpo GL ; diabetes Miletus and periodontal diseases ; periodontal ; 44 ; 127 – 53 : 2000 , 2007 .
9- Paquette Dw , Brodalan , Nichols Tc ; cardio vascular diseases inflammation and periodontal infection ; periodontal 200 ; 44 ; 113 – 26 : 2007 .
10- Janket SG , Baird AE , Cnuang Sk , Gones Ga ; meta – analysis of oral diseases and risk of coronary heart diseases and stroke ; oral surg oral med oral pathol ; 95 (3) ; 559 – 69 : 2003 .
11- Vettore MV ; periodontal diseases and cardio vascular diseases ; Evid Based Dent ; 5 (3) ; 69 : 2004 .
12- Danish J , Hirschfield GM , Eda S ; a creative protein and other circulating markers in coronary heart diseases inflammation ; N engl Med . 350 (14) ; 1387 – 97 : Apr 2004 .
13- Toannidou E , Malekzadch T ; Effect of periodontal treatment on serum c – reactive protein level ; a systematic review and meta analysis ; periodontal ; 77 (10) ; 1635 – 42 : 2006 .
14- Accarinl R , De Grodoy MF ; periodontal diseases as a potentiol risk factor for acute coronary syndrome ; Arq Bras cardiol ; 87 (5) ; 592 – 6 : Nov 2006 .
15- Didileseu Ac , Skang N , Marica C ; Respiratory pathogens in dental plaque of hospitalized patients with lung diseases ; clinic and investing ; 9 (3) ; 141 – 7 : 2005 .
16- Scannapreco FA ; Role of oral bacteria in Resp , infection ; periodontol ; 70 (7) ; 793 – 802 : 1999 .
17- Azarpazhooh A , Leak JL ; systematic review of the association between respiratory diseases and oral health ; periodontol ; 77 (9) ; 465 – 82 : 2006 .
18- Awano S , Ansai T , Takata Y , Soh K ; oral health and mortality risk from pneumonia in the elderly ; Dental Resp ; 87 (4) ; 334 – 9 : 2008 .

19- Scanna pieco FA , Bush RB , paju S ; association between periodontal diseases and risk for nosocomial bacterial pneumonia and chronic obstructive pulmonary diseases ; A systematic review ; Ann periodontol ; 8 (1) ; 54 -69 : 2003 .
20- Fourrier F , Dubois D , Leroy O , Pronnier P ; Effect of gingival and dental plaque antiseptic decontamination on nosocomial infections acquired in the intensive care unit ; a double – blind placebo controlled multi center study ; crit cere Med ; 33 (8) ; 1728 – 35 : 2005 .
21- Miranda LA ; periodontal conditions in patients with juvenile idiopathic arthritis ; Journal of clinical period ontology : November 2003 .