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Frequency of Systemic Diseases and Medication Intake by Patients Referred to the Department of Oral Medicine of Hamadan Dental School

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Objectives Due to advances in knowledge and treatment of diseases, life expectancy has increased worldwide. This study aimed to determine the prevalence of systemic diseases and medication intake by dental patients referred to dental clinic of Hamadan Dental School.

Methods A total of 800 patients referred to the Department of Oral Medicine from October 2013 to May 2014 were studied. The data extracted from patient charts included demographic data, systemic diseases, and medication intake, which were analyzed using the Chi-square test and Fisher's exact test with SPSS version 16.0.

Results Of all, 28.8% of participants were males and 71.2% were females. The mean age of participants was 32.3 years. The total prevalence of systemic diseases was 30.5%. The most common condition was endocrine diseases. The total prevalence of medication intake was 20% and the most common medications taken were supplements and antihypertensive medications.

Conclusion The results of the present study showed that systemic diseases were prevalent in dental patients. Dentists and dental students must take a precise medical and medication history from patients before starting any dental procedure to prevent medical emergencies.

Keywords Disease; Drug Therapy; Dental Health Services; Dentistry

Introduction

Systemic diseases are described as all diseases that affect the body organs and tissues.[1] Due to advances in medical knowledge and patient care, many systemic diseases can be controlled and life expectancy has increased. Patients with chronic diseases often have a longer course of medication intake.[2] The global burden of non-communicable diseases is significant and the World Health Organization has emphasized on the significance of tackling non-communicable diseases as a key strategic aim in their global action plan for prevention and control of non-communicable diseases.[3] Because of improved oral health and hygiene, natural teeth can be persevered until old ages. Therefore, the number of elderly people with systemic diseases requiring dental treatment is also increasing.[4] A thorough medical history of patients is required to find any systemic diseases. Also, a medication history is required for treatment of patients at any age because medication intake can interfere with dental treatment.[5] Many medications have been reported as possible etiologic factors for oral lichen planus and oral lichenoid lesions.[6] It is particularly important for dentists to identify complications and interactions of medications taken by patients to prevent unwanted medical emergencies.[7, 8] Oral mucosa can be a major source of systemic inflammation and increase disease severity, especially respiratory and cardiovascular diseases.[9, 10] Dental patients may not correctly report their medical problem to their dentist because they may be unaware of the importance of systemic disease complications and drug interactions.[11] Therefore, accurate medical history taking and detailed questions about systemic health and medication intake seem necessary to minimize the risks of dental treatments.[12] There is much evidence showing that while systemic diseases may influence the pathogenesis of endodontic infections, endodontic infection can also cause systemic conditions such as more severe bone resorption and inflammation in the periapical tissue as well as aggravated systemic disease symptoms.[13] Knowledge about the prevalence of various systemic diseases is important from both the clinical view and public health planning.[14]

Very limited studies have been conducted on the prevalence of systemic diseases among dental patients in Iran. Therefore, the aim of this study was to assess the prevalence of systemic diseases and medication intake by dental patients referred to the Department of Oral Medicine of Hamadan Dental School.

Materials and Methods

This study was approved by the Ethics Committee of Hamadan University of Medical Sciences (approval number: 9212064130). In this prospective cross-sectional

study, we interviewed 800 patients referred to the Department of Oral Medicine from October 2013 to May 2014. A senior dental student performed all the interviews. All patients signed informed consent forms for participation in this study. The patient charts included some questions about demographic information, systemic diseases, medication intake, and special systemic conditions such as pregnancy and substance abuse. In some patients with insufficient medical and drug history, more questions were asked from their family members. The exclusion criterion was unwillingness for participation in the study.

The data were analyzed using SPSS version 16.0. The chi-square test was used to analyze the differences in the frequency of systemic diseases and medication intake in different age and sex groups. The Fisher's exact test was also used for data analysis. P value less than 0.05 was considered statistically significant.

Results

Of all, 230 (28.8%) participants were males and 570 (71.2%) were females. The mean age of participants was 32.3±12 years (range 12 to 80 years). The patients were divided into four age groups: 12-20 years (14.6%), 21-40 years (61.2%), 41-60 years (22%), and 61-80 years (2.2%). Of all, 65% of patients were from Hamadan city, 30% were from the counties adjacent to Hamadan and 5% were from other provinces.

The total prevalence of systemic diseases was 30.5%; 22.8% had at least one disease, 5.4% had two diseases and 1.7% had more than two diseases. The prevalence of systemic diseases in the age group of 61-80 years was higher than that in other age groups. The most common disease group was endocrine diseases (6.4%). Cardiovascular diseases (5%), blood diseases (4.6%), and autoimmune diseases (3.9%) were other common disease groups. No statistically significant correlation was found between gender and systemic diseases (P>0.05). Table 1 shows the distribution of systemic diseases according to gender. Statistically significant correlations were observed between age and some systemic disease groups including endocrine diseases, cardiovascular diseases and respiratory diseases (P<0.05). Table 2 shows distribution of systemic diseases according to age.

Table 1- Distribution of systemic diseases according to gender

	Male N=230	**Female** N=570	**Total** N=800	**P-value**
Endocrine diseases	9 (3.9%)	42 (7.4%)	51 (6.4%)	0.07
Cardiovascular diseases	9 (3.9%)	31 (5.4%)	40 (5%)	0.37
Blood diseases	6 (2.6%)	33 (5.8%)	39 (4.9%)	0.06
Autoimmune diseases	8 (3.5%)	23 (4%)	31 (3.9%)	0.71
Gastrointestinal diseases	6 (2.6%)	17 (2.9%)	23 (2.9%)	0.77
Psychological disorders	6 (2.6%)	11 (1.9%)	17 (2.1%)	0.54
Neuromuscular diseases	3 (1.3%)	12 (2.1%)	15 (1.9%)	0.45
Infectious diseases	2 (0.9%)	7 (1.2%)	9 (1.1%)	0.5*
Respiratory diseases	1 (0.4%)	7 (1.2%)	8 (1%)	0.28*
Renal diseases	3 (1.3%)	2 (0.3%)	5 (0.6%)	0.15*
Cancers	1 (0.4%)	4 (0.7%)	5 (0.6%)	0.29*

*P-value fisher exact test

Table 2- Distribution of systemic diseases according to age

	12-20 N=117	**21-40** N=490	**41-60** N=176	**61-80** N=17	**P-value**
Endocrine diseases	5 (4.3%)	22 (4.5%)	18 (10.2%)	6 (35.3%)	<0.001
Cardiovascular diseases	0 (0%)	9 (1.8%)	21 (11.9%)	10 (58.8%)	<0.001
Blood diseases	8 (5.9%)	22 (4.2%)	8 (4.5%)	1 (5.8%)	0.75
Autoimmune diseases	2 (1.7%)	23 (4.6%)	6 (3.4)	0 (0%)	0.51*
Gastrointestinal diseases	3 (2.5%)	12 (2.4%)	7 (3.9%)	1 (5.8%)	0.18*
Psychological disorders	0 (0%)	12 (2.4%)	5 (2.8%)	0 (0%)	0.24*
Neuromuscular diseases	1 (0.8%)	10 (2%)	3 (1.7%)	1 (5.8%)	0.17*
Infectious diseases	0 (0%)	7 (1.4%)	2 (1.1%)	0 (0%)	0.4*
Respiratory diseases	0 (0%)	2 (0.4%)	4 (2.2%)	2 (11.7%)	<0.001*
Renal diseases	1 (0.8%)	2 (0.4%)	2 (1.1%)	0 (0%)	0.52*
Cancers	1 (0.8%)	2 (0.4%)	2 (1.1%)	0 (0%)	0.15*

*P-value fisher exact test

The most common diseases were anemia (4.6%), hypertension (3.5%), hypothyroidism (2.1%), diabetes (1.9%), dyslipidemia (1.9%) and allergy (1.9%).

The prevalence of addiction in this study was 6%; 4.7% smoked cigarettes, 2.2% had quit cigarette smoking and 1.7% had opium abuse.

A statistically significant correlation was found between sex and addiction (P<0.05).

The total prevalence of medication intake was 20%; 13.6% were taking at least one medication, 3.75% were taking two medications and 2.6% were taking more than two medications. The most common medication groups were supplements (6.2%), antihypertensive agents (3.7%), thyroid

hormones (2.1%), hypoglycemic agents (1.6%), anticoagulants (1.6%), antibiotics (1.6%), and sedatives (1.6%). The prevalence of taking supplements, antihypertensive agents and hypoglycemic agents was significantly higher in females (P<0.05). Among 570 females that participated in this study, 8 were pregnant [first trimester 6 persons (1.05%), second trimester 1 person (0.17%), third trimester 1 person (0.17%)]. Four women were lactating.

Table 3 shows the frequency distribution of medication intake according to gender.

The prevalence of taking antihypertensive agents, hypoglycemic agents, anticoagulants, sedatives, corticoids, and antihistamines significantly increased with age (P<0.05). Table 4 shows the distribution of medication intake according to age.

The most commonly used medications were levothyroxine, aspirin, Metoral, metformin, propranolol, atorvastatin, omeprazole, atenolol, lorazepam, prednisone, fluoxetine and salbutamol.

Table 3- Distribution of taking medication according to gender

	Male N=230	**Female** N=570	**Total** N=800	**P-value**
Supplements	4 (1.7%)	46 (8.1%)	50 (6.2%)	0.001
Antihypertensive agents	5 (2.2%)	25 (4.4%)	30 (3.7%)	<0.001
Thyroid hormone	2 (0.9%)	15 (2.6%)	17 (2.1%)	0.11
Hypoglycemic agents	2 (0.9%)	11 (1.9%)	13 (1.6%)	<0.001
Anticoagulants	6 (2.6%)	7 (1.2%)	13 (1.6%)	0.16
Antibiotics	5 (2.2%)	8 (1.4%)	13 (1.6%)	0.43
Sedatives	5 (2.2%)	8 (1.4%)	13 (1.6%)	0.43
Antipeptic ulcer	3 (1.3%)	9 (1.6%)	12 (1.5%)	0.77
Anticonvulsants	2 (0.9%)	7 (1.2%)	9 (1.1%)	0.31
Antidepressants	0 (0%)	9 (1.6%)	9 (1.1%)	0.95*
Antidyslipidemia	1 (0.4%)	6 (1.1%)	7 (0.9%)	0.42*
Corticoids	2 (0.9%)	4 (0.7%)	6 (0.7%)	0.24*
NSAIDs	0 (0%)	5 (0.9%)	5 (0.6%)	0.98*
Bronchodilators	1 (0.4%)	3 (0.5%)	4 (0.5%)	0.89*
Antihistamines	1 (0.4%)	3 (0.5%)	4 (0.5%)	0.54*

*P-value fisher exact test

Table 4- Distribution of taking medication according to age

	12-20 N=117	**21-40** N=490	**41-60** N=176	**61-80** N=17	**P-value**
Supplements	4 (3.4%)	33 (6.7%)	11 (6.2%)	2 (11.8%)	0.44
Antihypertensive agents	0 (0%)	10 (2%)	13 (7.4%)	7 (41.2%)	<0.001*
Thyroid hormone	3 (2.6%)	9 (1.8%)	5 (2.8%)	0 (0%)	0.78*
Hypoglycemic agents	1 (0.8%)	2 (0.4%)	8 (4.5%)	2 (11.8%)	<0.001*
Anticoagulants	0 (0%)	0 (0%)	7 (4%)	6 (35.3%)	<0.001*
Antibiotics	1 (0.8%)	11 (2.2%)	0 (0%)	1 (5.9%)	0.06*
Sedatives	0 (0%)	6 (1.2%)	5 (2.8%)	2 (11.8%)	0.01*
Antipeptic ulcer	0 (0%)	9 (1.8%)	3 (1.7%)	0 (0%)	0.63*
Anticonvulsants	1 (0.8%)	5 (1%)	2 (1.1%)	1 (5.9%)	0.44*
Antidepressants	0 (0%)	5 (1%)	3 (1.7%)	1 (5.9%)	0.7*
Antidyslipidemia	0 (0%)	3 (0.6%)	3 (1.7%)	1 (5.9%)	0.05*
Corticoids	0 (0%)	2 (0.4%)	3 (1.7%)	1 (5.9%)	0.03*
NSAIDs	0 (0%)	4 (0.8%)	1 (0.6%)	0 (0%)	0.83*
Bronchodilators	0 (0%)	1 (0.2%)	3 (1.7%)	0 (0%)	0.13*
Antihistamines	0 (0%)	3 (0.6%)	0 (0%)	1 (5.9%)	0.005*

*P-value fisher exact test

Discussion

Knowledge about the systemic diseases and medication intake by patients seeking dental treatment is important to provide safe and appropriate treatment. In the present study, we evaluated the prevalence of systemic diseases and medication intake in a sample of general population.

The prevalence of systemic diseases in this study (30.5%) was less than the percentage reported by previous studies.[15, 16] The reasons can be related to the differences in the surveyed society, sample size and nutritional and hygienic status of patients.

Anemia was the most common disease among patients (4.6%) and similar to the findings of Georgiou et al.[14] it was significantly more common in females.

According to the results of other studies, [2, 5, 7, 12, 16, 17] among the cardiovascular diseases, hypertension was the most prevalent disease in the elderly. We found that 3.5% of dental patients had hypertension.

Hypothyroidism was observed in 2.6% of the patients studied. The prevalence of hypothyroidism in the present study was similar to the findings of Georgiou et al.[14] and it was significantly more prevalent in females.

Diabetes and dyslipidemia are two of the most important endocrine diseases which are related to aging and life style. In this study, the prevalence of both diseases was 1.9%, which was lower than the findings of previous studies.[14, 16, 17] The high mean age of patients in the aforementioned studies is the reason for this discrepancy.

In the present study, the prevalence of addiction was significantly correlated with gender, and addition was only observed in males. The frequency of opium abuse significantly increased with age.

Pregnancy and lactation are special systemic conditions that are affected by dental treatment and subsequent medication intake. In our study, 1.4% of the female population were pregnant and 0.7% were nursing. In previous studies, the prevalence of these two conditions was not evaluated.

The prevalence of medication intake in the present study was lower than the results of previous studies.[7, 16, 18] The prevalence of systemic diseases in this study was lower than the results of previous studies. 15,16 Medication intake had a similar prevalence compared with the findings of Galan et al.[19] and was significantly higher in elderly patients.

In the current study as well as that of Radfar and Suresh[16] antihypertensive agents were the most common medications. The prevalence of taking antihypertensive agents in our study was 3.7% while Radfar and Suresh[16] reported a prevalence of 35%. Among the supplements, ferrous sulfate tablet was the most common medication taken with a prevalence of 3.6%. This medication was significantly more consumed by females. These findings are in agreement with the findings of Yaghmaiee et al.[18] According to the results of this study, the prevalence of taking methimazole or levothyroxine was 2.1%. Radfar and Suresh[16] reported the prevalence of taking this medication to be 8%. Yaghmaiee et al.[18] found the prevalence of drug intake to be 3.6% among patients presenting to dental clinic of Shahid Beheshti Dental School.

Dentists and health care workers should be aware of the prevalence of systemic diseases, the importance of history taking and the management of medically compromised patients.

Conclusion

The results of the present study showed that systemic diseases were prevalent in dental patients. Dentists and dental students must take a precise past medical and medication history before starting any dental procedure. For patients with systemic diseases, a medical consultation can decrease the complications and prevent medical emergencies. In dental schools, the curricula must be revised to provide more instruction about medically-compromised patients.

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Conflict of Interest

Non Declared ■

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