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A retrospective study of medically compromised patients referred to the Department of Oral and Maxillofacial Surgery, School of Dentistry of Tehran University of Medical Sciences, Iran

Abolhasan Mesgarzadeh[a], Hamid Mahmood-Hashemi[b], Reza Sharifi[b], Mahboube Hasheminasab[c*], Abbas Karimi[b]

a Department of Oral and Maxillofacial Surgery, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran; b Department of Oral and Maxillofacial Surgery, School of Dentistry AND Craniomaxillofacial Research Center, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran; c Craniomaxillofacial Research Center, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran

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**Corresponding author:*
Mahboube Hasheminasab
Craniomaxillofacial Research Center, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran
Tel: +98-2184902473
Fax: +98-2184902473
Email:
mahboube.hasheminasab@gmail.com

ABSTRACT

Introduction: Due to the increased prevalence of medically compromised patients who require dental treatments, it is a crucial task for dentists and dental specialists to prepare themselves for emergent professional situations. This study was performed to determine the prevalence of different medical problems among a population of patients admitted to a dental educational center.

Materials and Methods: In this prospective study, the prevalence of medical problems in patients (n = 968) referred to the Department of Oral and Maxillofacial Surgery of the School of Dentistry of Tehran University of Medical Sciences, Iran, was investigated for 3 consecutive months.

Result: Among all patients, 397 were medically compromised patients. The mean age of the patients was 48 ± 0.15 and 51.4% were men. The results showed that 41% of the patients had at least one medical problem. The two most common diseases were hypertension (13.9%) and diabetes mellitus (6.3%), respectively. The majority of patients with medical problems were referred from private dental offices. The majority of patients (97%) had well-controlled systemic diseases that could be treated in a private office.

Conclusion: This investigation showed the necessity of teaching the management of medically compromised patients in dental school curriculum and in continuous dental education programs.

Keywords: Oral Surgery, Systemic Disease

Introduction

The increased prevalence of medically compromised patients, who require dental treatments, and the fact that many systemic medical conditions necessitate some modifications in routine dental procedures, make it crucial for dentists and dental specialists to prepare themselves for this emergent professional situation. Today, dental practitioners need more extensive knowledge of internal medicine, pharmacology, and pathophysiology of common cardiac, pulmonary, renal, and other medical disorders. The studies in other countries have shown that about half of the patients referred to the dental schools had at least one medical complication [1, 2].

Some dentists might be reluctant to accept medically compromised patients in their private practice. This might be partly due to a lack of adequate knowledge and skill to manage these patients. The majority of such patients are ultimately referred to dental schools, making these centers a rich collection of medically compromised patients requiring various dental treatments. Therefore, dental schools and teaching dental hospitals could serve as an excellent source and an appropriate starting point to improve the skill, knowledge, and experience of future dental practitioners regarding the management of medically compromised patients. This study was performed to determine the

prevalence of different medical problems among a population of patients admitted to a dental educational center.

Material and Methods

The study population included all patients older than 20 years of age referred to the Department of Oral and Maxillofacial Surgery of the School of Dentistry in Tehran University of Medical Sciences, Iran, in October, November, and December of 2012. A comprehensive health questionnaire, comprising of 31 questions, was designed. This questionnaire (Appendix) included both "yes/no" questions and open ended questions, covering a complete review of body systems as well as histories of previous operations, hospitalization, and medication use. For every new patient referred to the department, a dental student was assigned to interview the patient and to fill the questionnaire, while maintaining the privacy and confidentiality of the patients. According to the guidelines of the institutional review board, all patients filled an informed consent form and were informed that their health information would be used in a research project, although they would remain anonymous. Data were collected and entered into a Microsoft Excel spreadsheet. Statistical analysis was performed by SPSS for Windows (version 16; SPSS Inc., Chicago, IL, USA). Chi-square test was used for statistical analysis.

Results

A total of 968 consecutive patients (470 females and 498 males) were included in this prospective study. The age of the patients ranged from 21 to 73, with a mean of 48 ± 0.15 years. Of these patients, 397 individuals (41.0%) had at least one medical problem, a number of which necessitated some modifications in routine dental management, including antibiotic prophylaxis, preoperative laboratory testing, premedication, and dose adjustment. Of these 397 patients, 281 individuals (70.0%) stated that they had been referred to the School of Dentistry by a dentist who was reluctant to treat them because of their systemic disease. Of the remaining 571 patients who were systemically healthy, 545 individuals (95.4%) stated that they chose to be treated in the School of Dentistry and not a private clinic because it was considerably less expensive for them. Among systemic healthy patients, 26 individuals (4.5%) chose to be treated at the School of Dentistry because they believed that a dental school provided better services to them. There was a slight sexual difference in the prevalence of medical problems, with 46.8% of women and 35.7% of men having at least one medical problem.

Hypertension was the most frequent medical problem found, affecting 135 individuals (13.9%) of the whole study population (n = 968). Hypertension was more prevalent among women compared to men, affecting 16.2% of women in this study and 11.8% of men. Of the 135 patients who had hypertension, 21 individuals (28.3%) either did not use their medications regularly or completely refrained from taking medications prescribed by their cardiologists.

The second most common medical problem was diabetes mellitus, affecting 61 patients out of 968 individuals (6.3%). Of these patients 34.8% had type 1 and 65.2% had type 2 diabetes mellitus. Diabetes mellitus was more prevalent among women than men, affecting 40 out of 470 females (8.5%), and 21 out of 498 males (4.2%). Of 61 patients who had diabetes mellitus, 8 individuals (13.1%) had poorly controlled diabetes mellitus as evidenced by either preoperative laboratory tests, irregular use of their medications, or poor attention to diet.

Of the 968 individuals, 31 (3.2%) patients had epilepsy. Among female patients, 11 individuals (2.3%), and among male patients, 20 individuals (4.0%) had epilepsy. Of all patients with epilepsy, the disease was poorly controlled in 4 individuals (12.9%).

Hyperthyroidism was observed in 15 out of 968 patients (1.5%); 9 out of 470 women (1.9%), and 6 out of 498 men (1.2%). All patients with hyperthyroidism took their medications regularly and had no clinical signs or symptoms of uncontrolled hyperthyroidism.

Among the 968 patients, 14 (1.4%) had a history of cerebrovascular accident (CVA). Among female patients, 4 individuals (0.8%), and of all male patients, 10 individuals (2.0%) had a history of CVA. None of the patients had CVA in the last six months.

Of all patients, 13 (1.3%) had an intellectual disability, including 9 males (1.8% of all men) and 4 females (0.8% of all women).

Bipolar disorder was observed in 10 patients (1.0%). Moreover, 2 female patients (0.2%) had well-controlled Addison's disease. A number of other medical conditions were also included in this study, the results of which are summarized in figures 1 and 2. The majority of patients (97%) had well-controlled systemic diseases that could be treated in a private office.

Discussion

We studied the prevalence of medical problems among 968 dental patients in a dental school in Iran. The results showed that 41% of patients had one or more medical problems, with hypertension being the most common systemic disease. The results of a similar study in Trinidad and Tobago also showed that 42% of patients referred to a dental school for dental treatments had at least one medical problem, with hypertension being the most prevalent [1]. In the United States, a similar study showed that 54% of patients referred to a dental school had one or more systemic illnesses, with hypertension being the most common disease [2]. Another study in the United States showed that 68% of patients referred to a dental school had at least one medical problem [3]. However, it should be mentioned that the latter study was performed in 1979, and its results might not be representative of the current situation in the United States.

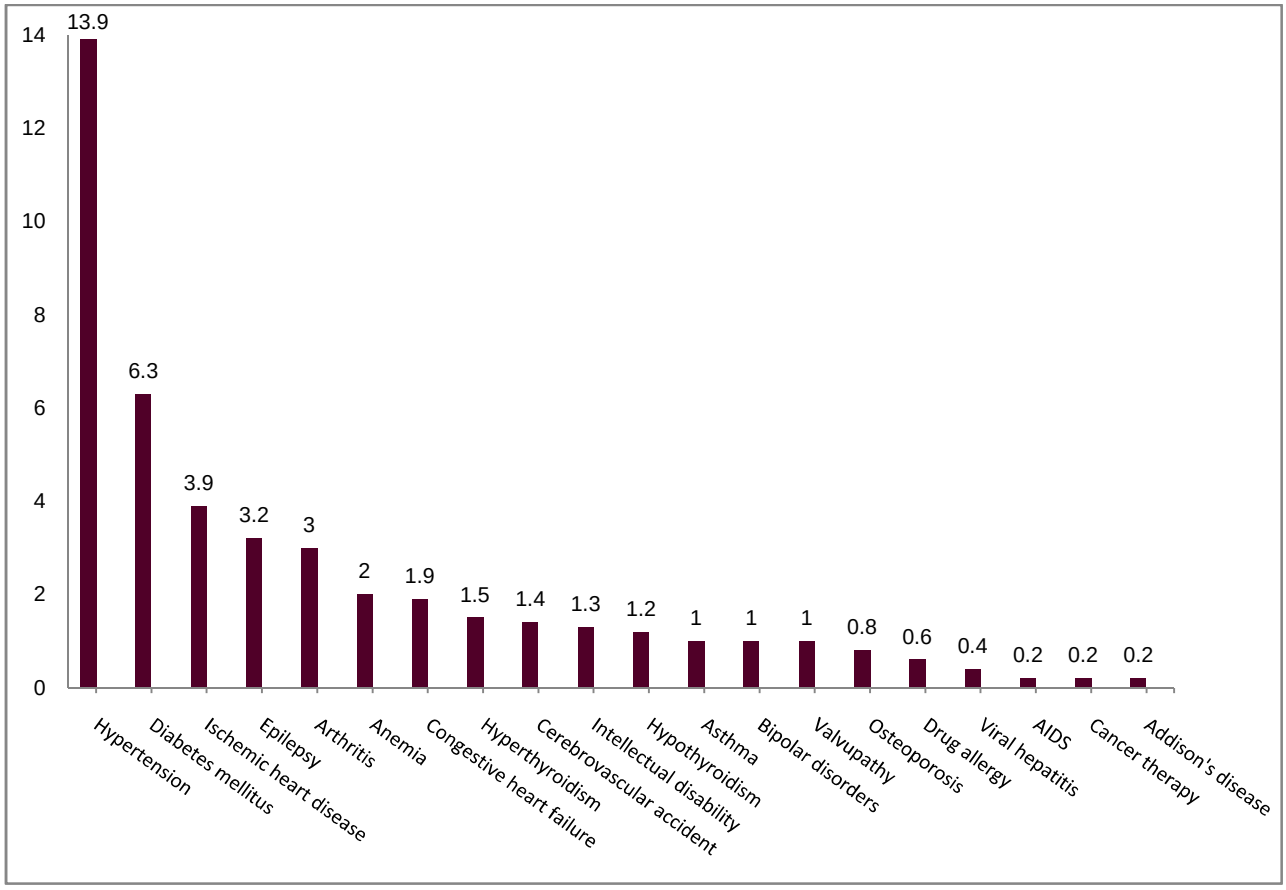

Figure 1. Percentage of individuals with different medical problems among the total study population

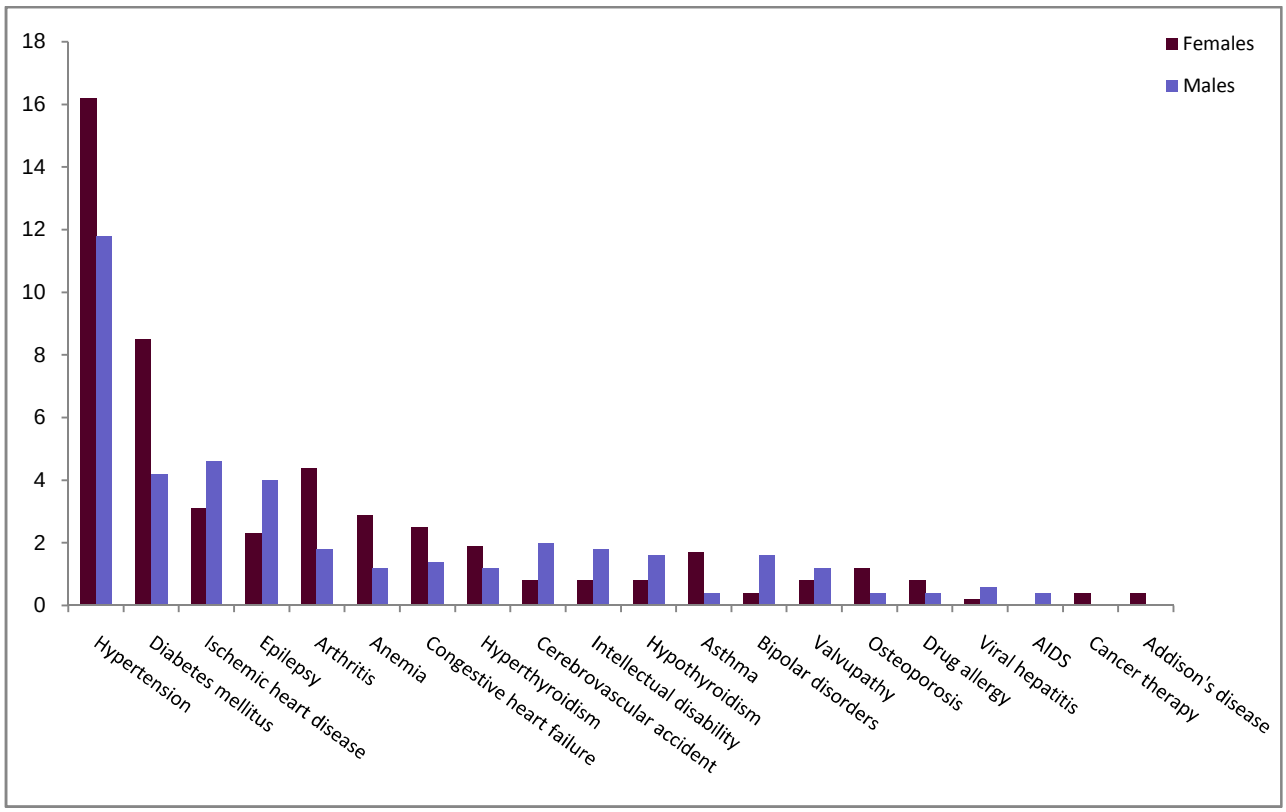

Figure 2. Percentage of men and women with different medical problems among the total study population

It seems that the prevalence of medical problems in patients referred to dental schools is considerably greater than the prevalence of medical problems in the general population of dental patients [4,6]. Compared to private clinics, a greater percentage of patients treated in academic centers have medical problems. This might be mainly due to the fact that many dentists in Iran lack appropriate and sufficient knowledge and skill to manage such patients, and therefore, many of these patients are referred from private practices to dental schools and teaching centers. On the part of dental schools, having a large population of medically compromised patients might be considered as an excellent opportunity for training students in the management of such patients. However, on the part of patients and community dental health, this is an undesirable situation causing restricted access of these patients to dental treatments.

The economic status of patients and its intimate relation with their general health is another reason for the higher prevalence of medically compromised patients in dental schools as compared with private dental offices. Patients with a better economic status are less likely to have medical problems, and they are more likely to go to a private dental office for dental treatments. On the other hand, patients with poor economic status are more likely to suffer from medical problems, and more likely to refer to affordable dental schools for dental treatments.

Due to improvements in medical science, people are living longer than ever before. Since people are living longer with better oral hygiene, they keep more teeth for a longer period of time. This has resulted in an increasing number of medically compromised individuals who require dental treatments. The results of a retrospective study in the United States have indicated a significant increase in the percentage of dental patients who had medical problems in 1986 as compared with 1976 [4]. Many medically compromised patients, either young or old, are not routinely admitted in private clinics and are referred to dental schools. This might be due to a lack of appropriate skill and sufficient knowledge among dentists to manage these patients. A study conducted on the periodontal patients in the United States showed that the prevalence of systemic medical problems in patients treated in a private office, an academic dental center, and a hospital dental clinic were 27.6%, 46.3%, and 74.1%, respectively [5]. Another study has shown that dental patients treated in public care facilities have a greater prevalence of systemic diseases compared to dental patients treated in private practices.

Although some of the patients in this study had such severe or uncontrolled diseases that it was better for them to be treated in a well-equipped clinic such as a dental school, the majority of them had well-controlled systemic diseases that could be treated in a private office. The management of much of these patients required nothing more than adequate knowledge and confidence on the part of the dentist. We believe that dental school curriculums should address the needs for practical management of the growing number of patients with medical problems. These curriculums require some adjustment toward a dental education with more emphasis on medical knowledge and management of medically compromised patients. These modifications should also be applied to post-graduation educational courses.

A recent survey shows that 75% of Iranian dentists follow the guidelines of the American Heart Association (AHA) for antibiotic prophylaxis to prevent infective endocarditis (IE); while, most dentists (87%) in the United Kingdom (UK) follow the British National Formulary guidelines [7]. According to AHA guidelines, the following underlying cardiac conditions are associated with an increased risk of IE and are the ones in which prophylaxis is recommended: (1) prosthetic cardiac valve or prosthetic material used for cardiac valve repair; (2) previous IE; (3) congenital heart disease (CHD) including unrepaired cyanotic as well as palliative shunts and conduits, completely repaired congenital heart defect with prosthetic material or device during the first six months after the procedure, and repaired CHD with residual defects; and (4) cardiac transplantation recipients who develop cardiac valvulopathy [8]. All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa will require IE prophylaxis.

The above mentioned survey also shows that most UK dentists prescribe the correct antibiotic prophylaxis regimens, but in Iran the knowledge of and compliance with the available guidelines regarding antibiotic regimens is poor [7]. In Iran, although dentists are familiar with the dental procedures that could place their patients at risk of infective endocarditis, they also use antibiotic prophylaxis for patients with medical conditions not known to be at risk. The same survey shows that for the UK dentists the most common source of information about antibiotic prophylaxis is medical and dental journals; while, for Iranian dentists, academic meetings, colleagues, and textbooks are the most common sources of information about this issue. Furthermore, 80% of dentists in both countries would like to attend additional courses about this topic.

Another survey shows that the knowledge and practices of Brazilian dentists in the prevention of infective endocarditis is inadequate [9]. Therefore, educational initiatives aimed at implementing updated recommendations and continuous assessment of dentists regarding the management of medically compromised patients seems to be necessary, at least in developing countries.

Conclusion

In the present study, the management of many of the medically compromised patients required nothing more than adequate knowledge and confidence on the part of the dentist. We believe that dental school curriculums should address the needs for practical management of the growing

number of patients with medical problems. On the basis of our findings and past experience, we suggest a revision in the curriculums of Iranian dental schools. However, such a suggestion could not be made for other countries unless more studies are performed worldwide.

Conflict of Interest: 'None declared'.

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Appendix: Sample questionnaire

Name: ..... Male☐ Female☐ Date of Birth: .....
Referred from other dental offices/clinics Yes☐ No☐

Answer all questions by circling either YES or NO and fill in all blank spaces where indicated.

1. Are you now under the care of a physician? Yes☐ No☐
If "Yes", what is the condition being treated? .....
2. Have you had any serious illness or operation? Yes☐ No☐
If "Yes", what was the illness or operation? .....
Do you have or have you had any of the following diseases or problems:
3. Thyroid, parathyroid, or other endocrine disorders Yes☐ No☐
4. Rheumatic fever or rheumatic heart disease Yes☐ No☐
5. Heart abnormalities present since birth Yes☐ No☐
6. Heart attack Yes☐ No☐
7. High blood pressure Yes☐ No☐
8. Pain or pressure in chest upon exertion Yes☐ No☐
9. Shortness of breath after mild exercise Yes☐ No☐
10. Swelling in the ankles Yes☐ No☐
11. Shortness of breath when you lie down Yes☐ No☐
12. Heart murmur Yes☐ No☐
13. Asthma or hay fever Yes☐ No☐
14. Stroke or other disorders in the brain Yes☐ No☐
15. Depression or other psychiatric disorders Yes☐ No☐
16. Seizures Yes☐ No☐
17. Diabetes Yes☐ No☐
Do you have to urinate more than six times a day? Yes☐ No☐
Are you thirsty much of the time? Yes☐ No☐

18. Abnormal bleeding associated with previous extractions	Yes☐	No☐	
19. Blood disorder such as anemia	Yes☐	No☐	
20. Surgery or radiation therapy or chemotherapy for a tumor, cancer, or other		Yes☐	No☐
21. Hepatitis, jaundice or liver disease	Yes☐	No☐	
22. Arthritis or other joint problems	Yes☐	No☐	
23. Stomach ulcers	Yes☐	No☐	
24. Kidney trouble	Yes☐	No☐	
25. Osteoporosis or other bone diseases	Yes☐	No☐	
26. Persistent or bloody coughs	Yes☐	No☐	
27. Infectious disease (viral/bacterial)	Yes☐	No☐	
28. Allergy or adverse reactions to a drug or food	Yes☐	No☐	
29. Are you pregnant, or presently breast-feeding?	Yes☐	No☐	
30. Are you taking any drug or medicine or herb?	Yes☐	No☐	

If "Yes", what? .....

31. Do you have any disease, condition, or problem not listed above? Yes☐ No☐

If "Yes", explain: .....