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Medical Status and Medication Use in Patients Attending Shorish Private Dental Specialty in Sulaimani City

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Abstract

Background: Advances in health care and pharmacotherapeutics have led to a growing aging population living with complex medical conditions. These changes are apparent in patients presenting for dental treatment.

Patients and methods: this study was carried out among patients (n=1200) who were visiting the department of oral medicine at shorish dental speciality in sulaimani city. The age range was between 10-79 years, 512 (45.2%) of participants were males and 620 (54.8%) were females. The data collected were age, sex, systemic diseases, medications, level of education and habit of smoking. Chi Square test was used to analyze the data.

Result: The prevalence of medically compromised conditions in dental patients was 35.24%, females had a significantly higher prevalence of medically compromised conditions (44.19%) than males (24.41%) (p=0.000). The most prevalent encountered disease category was gastrointestinal disorder (14 %) followed by skeletal disorders (11.7%), cardiovascular disorders (9%), and endocrine disorders (5.12%). 14.39% of patients reported taking medications, females took medications more frequently than males (19.35% versus 8.39%) (p=0.000). The most prevalent drugs were antihypertensive medication (5.2%), followed by endocrinologic agents (3.6%) and pain medication (3%). Prevalance of disease is increased significantly with increasing age (p=0.000).

Conclusion: There is a high prevalence of medically compromised conditions and a relatively high prevalence of patients taking medications among dental patients, as well as this study reflects the medical complexity of growing aging population; some of them has medically compromised conditions and use medications that are contraindicated for certain dental procedures therefore detailed history, careful examination and necessary medical consultation are mandatory before starting dental treatment.

Keywords: Medically compromised conditions; Dental patients; Prevalence

Introduction

The advances in medical technology, greater access to medical facilities and better socio-economic conditions enable people to live longer as evidenced by an increase in the life expectancy in many parts of the world [1]. These improvements are also reflected in better oral health in a number of patients since they still retain their natural teeth into the old age. As a consequence, dentists are expected to encounter a greater number of patients, especially the elderly. As the proportion of the elderly in the population continues to increase, there will be more patients with medically compromised conditions. When dentists have a chance to treat these patients, there are concerns that they should be aware of such as the effect of medical problems and their treatments on dental treatment plans, the dental or oral soft tissue problems that can arise in these patients and the effect of dental treatments on their medical conditions [2]. The goal of dental management is to provide safe and effective treatment without precipitating a medical crisis. Accordingly, dental treatment may have to be modified to be consistent with the medical constraints of the patient, and on occasion, physician consultation might be needed. Knowledge of the medical status of patients obtained through proper medical history-taking is fundamental to safe patient management [3].

Several studies assessed the prevalence of medical conditions among dental patients [2,4,5]. Obtaining a proper medical history from a patient is a difficult task in our country since most of the patients attending Shorish Private dental speciality in sulaimani city have little or no idea about their medical problems. Some of them are illiterate and are unable to give a clear history, as a result, there is a paucity of data regarding the prevalence of medically compromised conditions in private dental patients in sulaimani city, there has been no such study done in sulaimani city regarding medically compromised patients in Private dental patients. This study ascertained demographic information and assessed the medical status and medication usage in patients attending Shorish private dental speciality in Sulaimani city for seeking dental treatment.

Patients and Methods

A cross-sectional survey was carried out among patients (n=1200) who were visiting the department of oral medicine at Shorish dental speciality center in Sulaimani along 3 successive months (January -April 2014) for seeking dental treatment. Shorish hospital is one of the major private dental speciality center in sulaimani city, it is providing specialized dental care such as extraction, filling, prosthodontic, orthodontic and periodontal procedures etc. Majority of patients attending shorish private dental speciality were self-referred and few percentage of patients were referred from other dentists in the area. This research was approved by the Committee of Ethics at research of the University of Sulaimani and Shorish health center. According to

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declaration of Helsinki, signed consent forms were obtained from all participants before conducting the study [6].

The variables recorded for each patient were age, sex, level of education [(level 0 (illiterant), level 1 (primary school), level 2 (secondary school), level 3 (preparatory school), level 4 (bachelors and institution), level 5 (diploma, master, and PhD)], as well as smoking habit, subjects were classified into 3 categories according to their reported smoking habit, namely, "smoker" (smokes every day), "former smoker", and "never been smoker". "Former smoker" and "never been smoker" were defined as "nonsmokers" in data analyses. Smoker patients categorized into three groups: light smoker (<10 cigarettes/day), moderate smoker (10-19 cigarettes/day), or heavy smoker (>or=20 cigarettes/day) based on number of cigarettes per day smoked [7]. Patients categorized in to four age groups; less than twenty years, twenty to thirty nine years, forty to fifty nine years, and equal and more than sixty years.

Information on the current medical status obtained utilizing in-depth interviews; further aids were obtained from report of physician, and prescribed medications. Only patients suffering from chronic diseases were included in the study and only medications were currently used and for long term treatment were included, medications that were used in the past or its used symptomatically for short period of time were excluded from the study and were not included.

Medical conditions were categorized systemically, and medications were categorized based on their therapeutic classifications.

Medically compromised conditions were classified into 12 categories as follows; gastrointestinal disorders, skeletal disorders , cardiovascular disorders, endocrine disorders, hematologic disorders, renal disorders, allergy to medication, liver disorders, neurological disorders, psychological disorders, respiratory disorders, and others.

Medications were also classified into 14 categories as follows: antihypertensive medication, endocrinologic agents, pain medication, antidyslipidemic agents, antiplatlets medication, gastrointestinal agents, nutritional therapeutics, neurological medications, cardiovascular medication, psychotherapeutic medication, respiratory agents, antihistamine, anticoagulant medications and others.

Patients were considered to have multiple medical conditions if they had more than two diseases (three to six diseases per patient), patients were considered to be receiving multiple medication if they were regularly taking more than 2 drugs (three to six medication per patient)

Statistical analysis was performed using SPSS program version 16. Associations between categorical variables were tested using chi-square test; logistic regression test was used to determine effect of age on developing medical conditions and in taking medications. Statistical significance was set at $P < 0.05$.

Result

This study comprised 1200 patients, but 68 patients rejected to participate therefore the final number was 1132, of which 512 (45.2%) were male and 620 (54.8%) were females, the age range was between 10-79 years with mean age ± SD=32.32 ±13.18. Female to male ratio was 1.2:1

In this study prevalence of medically compromised condition was (35.24%). The most common encountered disease category was gastrointestinal disorders (14%) with irritable bowel syndrome being

Systemic diseases	N (%)
Gastrointestinal disorders	159 (14)
Skeletal disorders	133 (11.7)
Cardiovascular disorders	102 (9)
Endocrine disorders	58 (5.12)
Hematologic disorders	35 (3.1)
Renal disorders	31 (2.7)
Allergy to medication	28 (2.5)
Liver disorders	12 (1.1)
Neurological disorders	10 (0.9)
Psychological disorders	7 (0.6)
Respiratory disorders	4 (0.4)
others	56 (4.94)
Total	399 (35.24)

Table 1: Disease categories and prevalence of medically compromised conditions in 1132 patients.

the major component (10.68%) followed by skeletal disorders (11.7%), with osteoarthritis being the major component(8.92%), cardiovascular disorders (9%) with hypertension being the major component (6.5%) and endocrine disorders (5.12%) with diabetes mellitus being the major component (3.4%) (Table 1).

Prevalence of medication use was (14.39%). The most common medication category was antihypertensive medication (5.2%) followed by endocrinologic agents(3.6%) and pain medication (3%). Over all the average medication taken by patients aged equal and more than sixty years was 1.9 per person (Table 2).

Prevalence of medically compromised conditions were significantly higher among age group equal and more than sixty years (72.91%) than age group twenty to thirty nine years (31.54%) (p=0.000), prevalence of multiple medical conditions were significantly higher among age group equal and more than sixty years (27.08%) than age group twenty to thirty nine years (2.60%) (p=0.000). Prevalence of medication use was significantly higher among age group equal and more than sixty years (52.08%) than age group twenty to thirty nine years (9.18%) (p=0.000), prevalence of multiple medication use were significantly higher among age group equal and more than sixty years (18.75%) than age group twenty to thirty nine years (2.14%) (p=0.000). Prevalence of medically compromised conditions was significantly higher among females (44.19%) than males (24.41%) (p=0.000). Prevalence of multiple medical conditions was significantly higher among females (8.54%) than males (3.32%) (p=0.000). Prevalence of medication use was significantly higher among females (19.35%) than males (8.39%) (p=0.000). Prevalence of multiple medication use was significantly higher among females (5.80%) than males (2.73%) (p=0.01). Logistic regression test indicated statistically significant difference between age and medical conditions (p=0.000, OR=1.06), age and multiple medical condition (p=0.000, OR=1.12), age and medication (p=0.000, OR=1.08), and age and multiple medication use (p=0.000, OR=1.09) (Table 3).

Prevalence of medically compromised condition was higher among level 0 patients (46.41%) than level 4 patients (38.75%); however it was not statistically significant (p=0.10). Prevalence of medically compromised condition was higher among non-smokers (36.12%) than heavy smokers (29.87%); however it was not statistically significant (p=0.27) (Table 4).

Discussion

Epidemiological studies performed over the past few years have shown considerable variation in the prevalence of medically compromised conditions among different regions throughout the world. In the literature the prevalence of medical problems recorded falls within the range (10-69%) [8,9], based on diverse patient structure and using different methodologies.

In this study; prevalence of medically compromised conditions was (35.24%). This result is comparable to other studies done by Fernández-Feijoo et al. [4] (28.1%), and Al-Bayaty et al. [3] 42%. On the other hand, in a study by Dhanuthai et al. [2] prevalence of medically compromised conditions was (12.2%), in another study by Jainkittivong et al. [10] the prevalence of medically compromised conditions reached (82.5%). These variations may be due to several factors including age, sex, sample size, methodology, disease category involved in the study, some disease categories have higher prevalence among dental patients while other category have low prevalence or some disease categories have predilection for certain populations or taking into account that some of these disease categories have specific, early, and/or particularly aggressive oral manifestations (e.g., periodontal disease in diabetes) are more likely to visit dentist [4], recording large number

Medications	N (%)
Antihypertensive medication	59 (5.2)
Endocrinologic agents	41 (3.6)
Pain medication	34 (3)
Antidyslipidemic agents	22 (1.9)
Antiplatlets medication	15 (1.3)
Gastrointestinal agents	14 (1.2)
Nutritional therapeutics	10 (0.9)
Neurological medications	8 (0.7)
Cardiovascular medication	7 (0.6)
Psychotherapeutic Medication	5 (0.4)
Respiratory agents	4 (0.4)
Antihistamine	3 (0.3)
Anticoagulant medication	1 (0.1)
Others	28 (2.5)
Total	163 (14.39)

Table 2: Prevalence of medications used in 1132 patients at the time of dental visit.

of disease categories clearly results in a high prevalence of medically compromised patients. The majority of people in developing countries do not undergo routine medical check-ups. As a consequence, patients with asymptomatic diseases such as hypertension, heart disease, or diabetes mellitus often do not realize they are having these problems. Also, patients generally do not appreciate the amount of information the dentist needs to know or are reluctant to volunteer certain medical information. Some patients may consider this information irrelevant to dental treatment [5]. As aging is associated with progressive loss of memory, there is also a possibility that older patients did not report all of their medical conditions while at the dental clinic [11], furthermore, whether the study done in public or private dental clinics [4], it may be speculated that dentists in private practice could be unwilling to treat patients receiving polypharmacy, arguing that the public health system has specialist reference departments for complex cases, or that patients themselves take this decision as they may consider that the public health system has more means to resolve any medical complication that may arise during dental treatment [4].

The most common encountered medical conditions were gastrointestinal disorders followed by skeletal disorders, cardiovascular disorders, and endocrine disorders. Similarly Khader et al. [9] reported gastrointestinal disorders as the most common encountered medically compromised condition, these finding were the most commonly reported systemic conditions in different orders in different studies [9,10,12,13].

The increasing incidence and prevalence of systemic diseases, especially chronic diseases, among older adults have also led to a growing demand for medications [14].

In this study, prevalence of medication use was (14.39%). In a study by McDermott et al. [12] approximately (15%) of their patients were taking three or more medications at the time of examination. On the other hand; In another study by Brindley et al. [15] (26%) of their patients were taking systemic medication. In a study by Valderrama et al. [16], the prevalence of medication use was reach 83.1%.

The most common medication category was antihypertensive medication followed by endocrinologic agents and pain medications. The same result was observed by Esteves and Quintanilla [17] where antihypertensive medication was the most common reported medications, in a study by Aggarwal et al. [5], the most frequent

Age group		All patients	Medically compromised conditions	P-Value	Multiple Medical condition	P-Value	On Medication	P-value	On multiple medication	P-value
<20	Male	84	5 (5.95)	0.17	0(00.00)	-----	1(1.19)	0.36	0(00.00)	----------
	Female	93	10(10.75)		0(00.00)		3(3.22)		0(00.00)	
	Total	177	15 (8.47)		00 (00.00)		4(2.25)		00 (00.00)	
20-39	Male	283	57(20.14)	0.000	2(0.70)	0.008	10(3.53)	0.000	5(1.76)	0.56
	Female	370	149(40.27)		15(4.05)		50(13.51)		9(2.43)	
	Total	653	206 (31.54)		17 (2.60)		60 (9.18)		14(2.14)	
40-59	Male	124	50(40.32)	0.000	11(8.87)	0.003	22(17.74)	0.000	6(4.83)	0.003
	Female	130	93(71.53)		29(22.30)		52(40)		21(16.15)	
	Total	254	143(56.29)		40(15.74)		74(29.13)		27(10.62)	
≥60	Male	21	13(61.90)	0.13	4(19.04)	0.26	10(47.61)	0.58	3(14.28)	0.48
	Female	27	22(81.48)		9(33.33)		15(55.55)		6(22.22)	
	Total	48	35(72.91)		13(27.08)		25(52.08)		9(18.75)	
Total	Male	512	125 (24.41)	0.000	17 (3.32)	0.000	43 (8.39)	0.000	14(2.73)	0.01
	Female	620	274(44.19)		53(8.54)		120(19.35)		36(5.80)	
	Total	1132	399(35.24)		70(6.18)		163(14.39)		50(4.41)	

Table 3: Prevalence of medically compromised conditions according to age and sex.

Level of education	All patients	Medically compromised patients N (%)	P-value
Level 0	377	175 (46.41)	0.000
Level 1	300	94 (31.33)	
Level 2	170	34 (20)	0.18
Level 3	120	32 (26.66)	
Level 4	160	62 (38.75)	0.95
Level 5	5	2 (40)	
Total	1132	399 (35.24)	
Smoking			
nonsmoker	991	358 (36.12)	0.49
Light smoker	36	11 (30.55)	
Moderate smoker	28	7 (25)	0.62
Heavy smoker	77	23 (29.87)	
All smokers	141	41 (29.07)	
total	1132	399 (35.24)	

Table 4: Prevalence of medically compromised conditions according to level of education and habit of smoking.

medication was pain medications followed by antihypertensive medication. Although gastrointestinal disorders is the most common reported medical condition followed by skeletal disorders and cardiovascular disorder; antihypertensive medication is the most common used medications, because the majority of patients with gastrointestinal disorders do not use treatment for long time they receive only symptomatic drug treatment for short period of time and also because majority of patients with skeletal disorders at the beginning of their disease during acute state they used pain medication after that majority of them do not depend on medication for long term and they use pain medications just on need and for short period of time, and they depend mainly on other ways for controlling of their disease such as rest, exercise and use of belt etc.

Over all the average medication taken by patients aged equal and more than sixty years was 1.9 per person, in a study by Radfar and Suresh [14], the average medication used in the sixty years of age or older age group was 1.5. In a study by Aggarwal et al. [5], reported on average 1.8 medications per day.

The prevalence of medical conditions increased with increasing age, this is in agreement with other studies reporting that the prevalence of systemic diseases increases with increasing age [4,11,18]. In this study prevalence of medically compromised conditions were significantly more common among females than males, this is in agreement with other study by Dhanuthai et al. [2] where medically compromised conditions were more prevalent among females than males. This phenomenon may be attributable to the fact that females pay more attention to both general health and oral health than males as evidenced by the greater number of female patients attending Shorish dental speciality [female: male ratio=1.2:1 (620/512)] [2]. On contrary; in a study by Bhateja medically compromised conditions were more common among males than females. This phenomenon may be attributable to the fact that males pay less attention to both general health and oral health than females [19]. The prevalence of medication use increased with increasing age. Similar findings were reported by other studies [4,10].

Age group equal and more than sixty years showed significantly more multiple medication use than the age group twenty to thirty nine years, similarly Carter et al. [20], confirmed that there was a progressive increase in polypharmacy with age. Reviewing the literature, it has been shown that polypharmacy is more common in the population over 65 years of age [4,16].

The number of female patients who using medications was statistically higher than that of male patients. This result is similar to a study by Jainkittivong et al. [10] on 510 elderly Thai dental patients aged sixty years and older where women took medications more frequently than men (70% versus 58.5%). This result may be explained by the fact that woman are more sensitive and are more concern about their general health than men and has high prevalence of disease as evidenced in this study (44.19%) in females versus (24.41%) in males. Among Level 0 patients there were more patients with medically compromised condition than level 4 patients, although without statistical significant.

Dalstra et al. [21], in a study on socioeconomic differences in the prevalence of common chronic diseases indicated that most diseases showed higher prevalence among the lower education group.

Much has been written about the underlying mechanisms through which education may operate to affect disease. One hypothesis we find most plausible is that education may protect against disease by influencing life-style behaviors, problem-solving abilities, and values [22]. Moreover, education may facilitate the acquisition of positive social, psychological, and economic skills and assets, and may provide insulation from adverse influences [23].

In a study by Al-Bayaty et al. [3], the contributory role of tobacco smoking was brought into focus by showing higher prevalence rates of angina, hypertension, gastric ulcers, defective eyesight, and even family history of diabetes among smokers compared with nonsmokers. An interested finding of this study is that the prevalence of medically compromised conditions was higher among non-smokers than among heavy smoker patients but there was no significant difference between non-smokers and heavy smokers. Among males, the prevalence of medically compromised conditions was higher among heavy smokers than among non-smoker patients, but there was no significant difference between non-smokers and heavy smoker males. The exact reason for this result is unknown; perhaps because of multifactorial etiology of majority of disease categories that is to say no single risk factor for disease categories instead multiple factors causing disease and more than that smoking itself has not have the same effect on all disease categories. In this study majority of smokers were below the age of forty and only 31.20% of smokers were above the age of forty; of which 19.48% were heavy smoker and the age group below forty has low prevalence of disease than the age group above forty as known in the literature disease prevalence increase with increasing age [4,11,18], more than that majority of smokers were of male sex and only about 5.67% of smokers were female; of which 2.59% were heavy smoker and there is a high prevalence of disease among females (44.19%) compared to males (24.41%).

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