

## PREVALENCE OF MEDICAL CONDITIONS AMONG PATIENTS VISITING DENTAL SCHOOL IN ASIR REGION, SAUDI ARABIA: A RETROSPECTIVE STUDY

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### ABSTRACT

**Background:** Patients seeking dental care have significant medical problems. It is crucial to factor these in the treatment in order to manage it effectively and ensure its progress. To provide optimal care, it is important for the clinician to be aware of the type of medical condition the patient has. This study aims to assess the prevalence of medical conditions among patients seeking dental care in College of Dentistry, King Khalid University, Abha, Kingdom of Saudi Arabia.

### Aims & Objectives:

1. To assess the prevalence of medical conditions in patients seeking dental treatment
2. To assess the type of medical condition and age group
3. To estimate the number of Saudi and non-Saudi nationals with medically comprised conditions seeking dental care

**Results:** The files of 7,051 patients were screened, of which 725 had medical conditions. The age group of 40–80 years had a 51% prevalence rate. Endocrine (diabetic) conditions were the most prevalent, closely followed by cardiovascular, respiratory and hematologic conditions. Saudi patients constituted the predominant group.

**Conclusion:** Based on the results obtained from the study, we conclude that 10.3% patients had medically compromised conditions. Diabetes was the most prevalent, followed by cardiovascular, respiratory, drug allergy and hematologic conditions; also, majority of the patients were in the age group 40–80 years. The management of medically compromised patients in dental care is a specialty in itself. A dentist must master it in order to provide proper and comprehensive care through referral, treatment modification, and appropriate drug modifications. The dentist must also be well prepared to tackle any undue consequences or complications which may arise.

**Keywords:** Medical conditions, dental care, oral health

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### INTRODUCTION

Oral healthcare is an integral part of medical care. This is particularly evident when the patient seeking oral healthcare shows signs of systemic illness and/or disability<sup>1</sup>. The

proportion of the elderly population continues to rise (led by factors enhancing longevity such as advances in medical technology, greater access to medical facilities and better socio-economic conditions), as evidenced by the increase in life expectancy in many parts of the world. Consequently, the number of patients with medically compromised conditions is likely to rise<sup>2</sup>.

It is increasingly the responsibility of dentists and other oral healthcare professionals

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to identify systemic diseases, compromising conditions, and disabilities in their patients that have an impact on, and can be impacted by, oral health treatment<sup>3</sup>. Certain medical conditions and accompanying drug treatments do have an impact on oral structures and the delivery of dental care<sup>4</sup>. Modern medicine and unprecedented advances in therapeutics have helped replace inpatient care with outpatient care for patients with chronic illnesses<sup>5</sup>. Proper dental care starts with preparing an appropriate and precise medical history. Information on medical history before any dental treatment is vital and mandatory for appropriate patient care<sup>6</sup>. A comprehensive medical history must not only include the present condition but also family, drug and social history. These are significant leads to guide the dentist in effective treatment planning and referral before instituting dental care. Categorization of dental patients with medical history can be based on the effect of the patient's medical problem and drug therapy on the delivery of dental treatment; specific oral and dental problems that can arise from either the underlying medical condition or the patient's medication; and possible interaction between the patient's oral health and general health<sup>4</sup>. The dentist must be aware of the current guidelines for antibiotic prophylaxis. The guidelines for antibiotic prophylaxis against sub-acute bacterial endocarditis are revised regularly by the American Heart Association and British Heart Association.

This study aims to determine the prevalence of medical conditions among the southern Saudi Arabian population visiting King Khalid University's dental clinics. The prevalence of most common medically compromised conditions is also determined and categorized according to age group and nationality. Gender was not considered in this study as the number of female patients seeking dental care is very low. This is due to the fact that female patients are provided dental care in a separate campus, in line with the social norms in the country. A detailed history with proper documentation and referral to the concerned physician will guide

patients toward proper treatment and create awareness regarding their medical condition. Appropriate precautions and modifications in treatment can be made to suit the requirement of patients before giving dental treatment. This will significantly reduce associated risks and complications.

## MATERIALS & METHODS

The study covered patients visiting College of Dentistry, King Khalid University, for dental care. Medical records of one-year duration (between June 1, 2014 and May 31, 2015) were obtained from the Medical Records Department after due ethical clearance. Every patient's record/file was thoroughly screened by a minimum of two participants in the study.

The demographic data and medical profiles of patients were recorded in self-prepared charts. Age and nationality were included under demographic data. Information on type of medical condition (present and past), drug history and associated dental treatment previously rendered was also recorded.

Medically compromised conditions were classified into 11 categories: cardiovascular diseases, endocrine disorders, respiratory disorders, hematologic disorders, neurological disorders, infectious disorders, skeletal disorders, gastrointestinal disorders, renal disorders, drug allergies, and liver disorders. Medical conditions that were inappropriately documented/presented by the patient vaguely were categorized as "others".

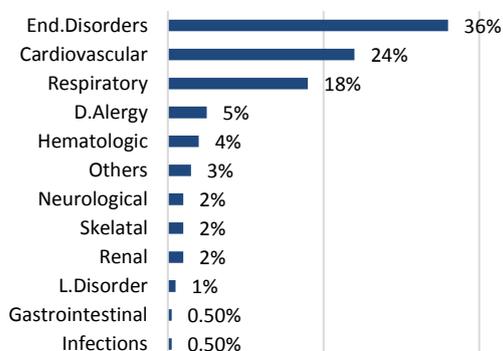
The data was divided based on age group, nationality and type of medical condition. This was subsequently decoded and entered into excel spread sheets. Results were represented in graphs in terms of percentages.

## RESULTS

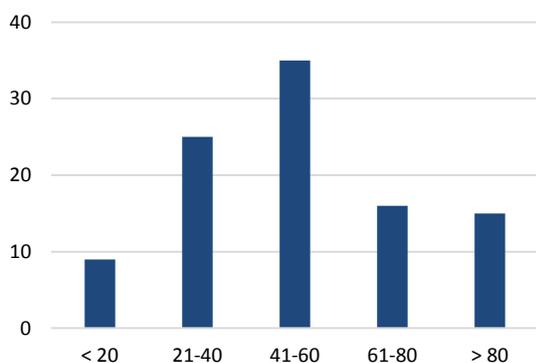
Research entailed a cross-sectional study. A descriptive analysis was conducted on the secondary data obtained. The files of 7,051 patients were screened. Of these, 725 (10.3%) had medical conditions.

As shown in Figure 1, endocrine (diabetic) conditions were the most prevalent (36%), followed by cardiovascular (24%), respiratory disorder (18%), drug allergy (5%) and hematologic conditions (4%). About 51% of patients with medically compromised conditions were in the age group of 41–60 years (Figure 2). As can be inferred from Figure 3, Saudi nationals (n = 535, % = 74%) constituted the majority of the 725 patients with medical conditions, while non-Saudi nationals formed the minority (n = 190, % = 26%).

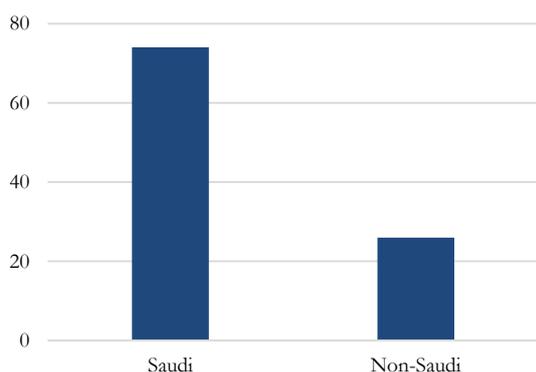
**Figure 1.** Distribution of patients according to the type of medical condition



**Figure 2.** Distribution of patients by age group (%)



**Figure 3.** Distribution of patients by nationality (%)



## DISCUSSION

Practicing dentistry effectively within the context of the larger healthcare system is a challenge for dental practitioners<sup>7</sup>. It is the responsibility of the dentist to prevent disability, aggravation of a medical disorder, or death of a patient during the course of treatment. To ensure this, it is imperative to start with a pertinent medical history. The changes and advancements in dental care have been significant. The scope of dentistry has expanded considerably from merely centering on the teeth to the diagnosis and treatment of the entire craniofacial complex. This makes it incumbent on dentists and dental practitioners to upgrade their knowledge with the latest advances in this specialty. Only comprehensive knowledge and its application will help lower the risk of complications associated with medical conditions during treatment. Dental care is usually fraught with anxiety and apprehension among patients. These strong emotions trigger the release of the hormone endogenous epinephrine, which aggravates medical conditions such as hypertension, hyperthyroidism, bronchial asthma and adrenal crisis. Delay in diagnosis and treatment can have fatal consequences.

Epidemiological surveys in various parts of the world indicated that 30% of patients with hypertension can have their blood pressure brought down below 140/90 mm Hg<sup>8</sup>. Most of the literature and studies conducted show cardiovascular diseases as the predominant medical condition in patients seeking dental care. However, in the present study, endocrine (diabetic) conditions emerged as the most prevalent, closely followed by cardiovascular, respiratory and hematologic conditions.

S. Bhateja conducted a study involving 36,729 patients in India. He concluded that 375 of them had medical conditions, with the prevalence of cardiovascular conditions being significantly high<sup>1</sup>. Z.S. Natto and M.S. Al-Zahrani conducted a similar study in Saudi Arabia and concluded that about 20% of the patients sampled had a positive history for one

or more medical conditions. Diabetes was the most frequently reported condition (7.4%), followed by hypertension (5.4%) and anemia (3%)<sup>9</sup>. Diabetes, essentially a metabolic disorder, can give rise to serious complications if not factored in dental care. The risks associated with it include bleeding, hypoglycemic attacks, delayed wound infection and secondary infection, among others. Therefore, a diabetic patient requires thorough evaluation and careful treatment modification. In general, for most medically compromised patients, a stress reduction protocol needs to be followed before dental treatment. Scheduling early morning appointments, offering short duration care, prescribing anti-anxiety drugs and patient counselling are few of the stress reduction protocol techniques suggested in medical literature. Another factor which must be considered is the inter-relationship between dentistry, oral health, chemoprophylaxis and infective endocarditis<sup>4</sup>. The overall prevalence of infective endocarditis stands at approximately 15 per million patients per year<sup>10</sup>.

Y.S. Khader *et al.* conducted a study among patients attending teaching clinics in northern Jordan to assess the prevalence of medical conditions. They concluded that gastrointestinal disease was the most prevalent disorder (11.9%), followed by bleeding tendencies (9.3%), renal disorders (8.7%), respiratory disease (8.3%), and hypertension (6.4%)<sup>11</sup>. Their findings are quite contrary to the results of majority of the studies as well as this study.

Another study conducted by K. Dhanuthai *et al.* on prevalence of medically compromised conditions involved dental patients of Chulalongkorn University. They reviewed the patients' medical files to assess medically compromised conditions. Of the 58,317 patients, 7,167 (12.2%) had medically compromised conditions. The five most prevalent conditions in descending order were allergy, hypertension, diabetes mellitus, heart diseases and thyroid diseases<sup>2</sup>. The results of this study are also contrary to the common belief that cardiovascular diseases are the

predominant medical conditions among patients seeking dental care.

Dental practitioners should be well versed with the interplay between oral and systemic diseases<sup>12</sup>. E.G. Absi *et al.* state that hospital departments of oral and maxillofacial surgery contribute substantially to both managing and treating medically compromised dental patients<sup>13</sup>. E.A. Georgakopoulou *et al.*, in their review on dental management of patients before and after renal transplantation, stated that patients who undergo transplantation require special dental care. As these patients are under anti-coagulants or immunodepressants, they are more susceptible to systemic and stomatological diseases. This makes consultation with a nephrologist, coagulation factors assay and close monitoring mandatory<sup>14</sup>. Most systemic diseases are not confined to just one organ system and affect many. A renal failure patient or a patient on renal dialysis would be at the risk of recurring infections, bleeding, drug toxicity, etc. Similarly, a diabetic patient is at the risk of bleeding, delayed wound healing, secondary hypertension, and hypoglycemic/hyperglycemic shock during dental treatment. The dentist must be aware of relevant investigations and advise the patient on these before starting the treatment.

F.M. McCarthy, in his review article, stated that pain, anxiety and stress commonly accompany serious morbidity in a medically compromised patient. He advised modification of treatment and grouped it into three general categories: stress reduction, ischemia-based modifications and adjuvants. Stress reduction elements include scheduling morning appointments, providing air-cooled environment, and advising proper pre-operative rest. Ischemia-based modifications include intraoperative oxygen delivery through cannula at 3ml/min, sedation by an appropriate route, and semi reclining treatment position with backrest at 45° from the horizontal. Adjuvants include nitroglycerine premedication, and awareness of anticoagulants, drug allergy and antibiotic prophylaxis<sup>15</sup>.

The use of local anesthetics with vasoconstrictor and the maximum dosage which can be safely administered to medically compromised patients is another widely debated topic. A.W. Budenz, in his featured article, stated that local anesthetics, with or without vasoconstrictors, may be safely used in most medically complex patients. Safety guidelines suggested by him include aspirating carefully before injecting; injecting slowly at a maximum rate of one minute per carpule; selecting anesthetic agent (with or without vasoconstrictor) based on the duration of anesthesia; and using minimum amount of aesthetic solution required to determine the adequate level of anesthesia<sup>16</sup>.

### CONCLUSION

Based on the results of this study, we conclude that 10.3% patients had medically compromised conditions. Diabetes was the most prevalent medical condition, followed by cardiovascular, respiratory, drug allergy and hematologic conditions, and majority of the patients were middle aged.

### RECOMMENDATION

The management of medically compromised patients in dental care is a specialty in itself. A dentist must master it in order to provide proper and comprehensive care through referral, treatment modification, and appropriate drug modifications. At the same time, the dentist must be well prepared to tackle any undue consequences or complications. Gathering complete medical history and careful clinical examinations are imperative to avoid complications and render effective dental care.

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### CONFLICT OF INTEREST

None

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