

PREVALENCE OF SYSTEMIC DISEASES IN ORAL SURGERY PATIENTS IN SOUTH INDIAN POPULATION

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ABSTRACT

Objective: The purpose of this study is to evaluate the prevalence of various systemic diseases in oral surgery patients in south Indian population.

Methods: The study population composed of 500 randomly selected patients who reported to Oral and Maxillofacial Surgery Department of Saveetha Dental College, Chennai, over a period of 3 months for various oral surgical procedures. With a standardized questionnaire, a thorough medical and dental history was taken, and patients were grouped according to the system involved. Data collected were statistically analyzed and results obtained.

Results: Out of 500 patients, 264 (52.8%) were medically compromised with a higher prevalence of diabetes mellitus (38.85) followed by hypertension (32.2%), gastritis (6.65), and asthma (5.2%). The results were statistically significant.

Conclusion: The prevalence of systemic diseases in oral surgery patients is high; therefore, a thorough history taking and careful clinical examination is mandatory before commencing any dental treatment. This will lead to identifying patients with underlying medical condition and will not only result in modifying dental treatment but also most importantly instituting appropriate management. Medically compromised patients will be on multiple drug therapy, and dentists must be aware of these drugs and their interactions when they prescribe medications for oral surgical procedures.

Keywords: Prevalence, Systemic diseases, Oral surgery, Medical conditions.

INTRODUCTION

Due to advances in medical technology, there is an increase in life expectancy in many parts of the world [1]. They also reflect 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 elderly patients. 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 [1].

To keep a high status of awareness, it is necessary to periodically review the type of patient population currently being treated so that necessary amendments can be made in the health-care protocol. To compile such information, it was decided to conduct this prospective demographic study to determine the prevalence rate of systemic diseases in oral surgery patients in our south Indian population. The rationale of this study is to assess the prevalence of systemic diseases among patients seeking for the treatment in the department of oral and maxillofacial surgery in our institution.

METHODS

The study population composed of 500 randomly selected patients who reported to Oral and Maxillofacial Surgery Department of Saveetha Dental College, Chennai, over a period of 3 months for various oral surgical procedures. The data were collected through a personal interview conducted by the same clinician who completed the questionnaire. A standardized medical questionnaire which included information on age, gender, marital status, education level and occupation, medications, smoking, and alcohol habits were questioned.

Patients were asked if they had any specific medical conditions. The collected data were analyzed with Statistical Package for Social Sciences for Windows, version 16.0 (SPSS Inc., Chicago, IL, USA) and results were obtained.

Patients having systemic diseases were grouped according to the system involved under the following headings.

Hematologic diseases

Anemia, leukemia, hemophilia, purpura, thalassemia, and other bleeding disorders.

Cardiovascular diseases

Hypertension, congenital heart diseases, rheumatic heart diseases, ischemic heart diseases, patient's undergone angioplasty, coronary by pass graft surgery, and prosthetic valve replacement.

Endocrine diseases

Diabetes mellitus, renal diseases, thyroid, and parathyroid disorders.

Infectious diseases

Tuberculosis, leprosy, HIV, and HBV.

Respiratory diseases

Bronchial asthma, sinusitis, bronchitis, and emphysema.

Neurologic diseases

Epilepsy, cerebrovascular episodes, migraine, neuralgia, and psychiatric problems.

Gastrointestinal diseases

Gastritis, hepatitis, and colitis.

Dermatologic diseases

Eczema, dermatitis, and psoriasis.

Multisystem diseases

Patients having more than one systemic disease.

Autoimmune diseases

Systemic lupus erythematosus, Sjogren's syndrome, and Behcet's disease.

RESULTS

Of the randomly selected 500 patients, 220 (44%) were males and 280 (56%) were females, whose ages varied between 20 and 80 years. More than half of the patients (264) had one or more medical conditions (52.8%). Fig. 1 categorizes age-wise distribution of systemic diseases of the patients. Fig. 2 categorizes frequency of occurrence of various systemic diseases in oral surgery patients. Following categorization, most systemic diseases were seen to occur in individuals in their 40 years to 60 years of age.

In our evaluation, diabetes mellitus was the most common systemic disease affecting the population with a rate of 38.3% (n=194, Table 1). Among them, 74% had Type 2 diabetes mellitus and 26% had type 1 diabetes mellitus. The second frequent medical condition in our population was hypertension at a rate of 32.2% (n=161, Table 2). The third prevalent medical condition was gastritis 6.6% (n=33, Table 3). The prevalence of other medical conditions in our study in the descending order was asthma 5.2% (n=26, Table 4), hypotension, sinusitis, allergy to drugs, all at the rate of 1.4% (n=7), and hypothyroidism 1.2% (n=6) (Table 6). Other systemic diseases reported were epilepsy 0.6% (n=3) and Parkinson's disease 0.6% (n=3) (Table 5). Three patients had angioplasty and two had undergone coronary bypass surgery. The prevalence of systemic diseases was found to be statistically significant. Many of our patients had more than one medical problem, diabetes mellitus with hypertension, hypertension with gastritis, etc.

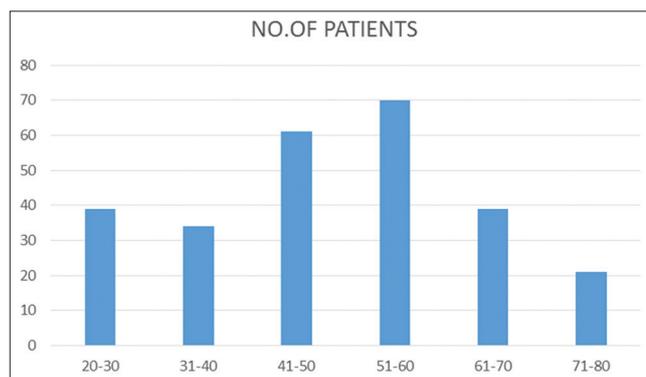


Fig. 1: Age distribution of systemic diseases in oral surgery patients

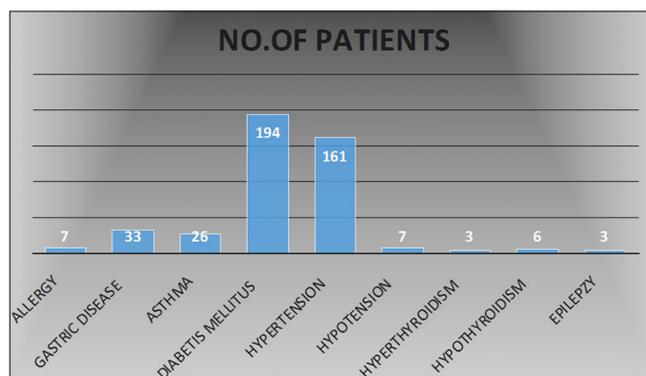


Fig. 2: Frequency of systemic diseases in oral surgery patients

DISCUSSION

In this study, female:male ratio was 1.27:1, which reflects that females pay more attention to their oral health, which is similar to a study by Dhanuthai *et al.* [2] More systemic diseases were seen to occur in individuals in their 40-60 years of age, as the prevalence of medically compromised conditions tends to increase with advancing age [3,4]. In our study, we had a high prevalence rate of 52.8% systemic diseases and patients had one or more medical conditions, and most of them were elderly. This is in accordance with other studies. A study by Cottone and Kafrawy [5] showed a prevalence rate of medically compromised patients in dental practice as 35.3% with highest prevalence of cardiovascular disease followed by metabolic diseases. Rhodus *et al.* [6] reported that the prevalence of medical conditions in dental patients increased from 7.3% in 1976 to 24.6% in 1986. Smeets *et al.* [7] revealed the prevalence of medically compromised patients from the survey of 29,424 dental patients from the Netherlands to be 28.2%. Saengsiravin *et al.* [8] disclosed the prevalence of medical conditions in Thai dental patients to be 55.45%. Umino and Nagao. [9] reported that one or more medically compromised conditions were encountered in 64.2% of elderly Japanese dental patients. Cottone and Kafrawy [5] conducted a survey from 4365 patients and the result indicated that 68.5% of the patients had at least one significant medical problem. Nery *et al.* [10] reviewed 581 periodontal patients' records, which revealed that the private office group had 27.6% medical problems, the academic dental center had 46.3%, whereas the hospital dental clinic showed

Table 1: Metabolic disorders

Systemic condition	Frequency	Percentage	Valid percentage
Diabetes mellitus	194	38.8	38.8
Hyperthyroidism	3	0.6	0.6
Hypothyroidism	6	1.2	1.2

Table 2: Cardiologic disorders

Systemic condition	Frequency	Percentage	Valid percentage
Hypertension	161	32.2	32.2
Hypotension	7	1.4	1.4
Had angioplasty/ CABG	5	1	1

CABG: Coronary artery bypass grafting

Table 3: Gastro intestinal disorders

Systemic condition	Frequency	Percentage	Valid percentage
Gastritis	33	6.6	6.6

Table 4: Respiratory disorders

Systemic condition	Frequency	Percentage	Valid percentage
Asthma	26	5.2	5.2
Sinusitis	7	1.4	1.4

Table 5: Neurological disorders

Systemic condition	Frequency	Percentage	Valid percentage
Epilepsy	3	0.6	0.6
Parkinson's disease	3	0.6	0.6

Table 6: Other disease

Systemic condition	Frequency	Percentage	Valid percentage
Allergy	7	1.4	1.4

the highest prevalence of 74.1%. This could be because most of these studies were done on elderly people, and systemic diseases tend to increase with increasing age.

In contrast to our study, others reported a lower prevalence rate of systemic diseases. In a study by Jean and Nam [11], the incidence of systemic diseases was only up to 4.3% in their population. Kolte *et al.* [12] in their study on the prevalence of systemic diseases in oral surgery patients in central Indian population found 4.055% had medical problems. Trend Inge Berg [13] stated that the incidence rate of medically compromised patients in Norwegian dental practice is 6.6% with highest prevalence of cardiovascular disease. Hari *et al.* [14] in a study conducted at Calicut, saw a prevalence rate of systemic diseases in dental patients up to 14.5%, with highest prevalence for cardiovascular diseases followed by diabetes mellitus. K. Dhanuthai reported (12.2%) of patients had medically compromised conditions in their study [2].

The most commonly reported disease in our study was diabetes mellitus followed by hypertension, gastritis, and asthma. This is in contrast to numerous other studies which have reported cardiovascular diseases (hypertension) to be the most commonly occurring systemic disease [5,12-14]. Kolte *et al.* in their study on the prevalence of systemic diseases in oral surgery patients in the central Indian population, saw highest prevalence for cardiovascular diseases (35.57%) followed by metabolic disorders (20.35%) [12]. In the present study, cardiovascular diseases (hypertension) came second as the most prevalent medically compromised conditions in dental patients as in the studies by Smeets *et al.* [7], Persson *et al.* [15], and Jainkittivong *et al.* [16]. A number of previous studies reported that cardiovascular diseases were the most prevalent medically compromised conditions in dental patients [5-7,9,10].

In our study, the rate of hypertension was observed as 32.2% which is comparable to previous studies [17]. Cardiovascular disease is a major cause of mortality in the United States [18]. Al-Bayaty, Aggrawal reported hypertension and diabetes as common diseases [19,20]. Khader *et al.* [21] who reported gastrointestinal diseases as the leading medical condition from their study. Allergy ranked as the most common medically compromised condition encountered in dental patients in the study by Dhanuthai *et al.* [2]. In our study, diabetes mellitus was common in patients, which reflects the medical status of people of this part of the country. Diabetes mellitus is an uprising medical problem in India, and a higher prevalence of this condition was seen in South Indian population from our study.

Allergy, cardiovascular diseases, and endocrine disorders are usually among the top five most common medically compromised conditions in dental patients, but in different orders in different studies [21]. This reflects the regional variation in the prevalence of systemic diseases in the population. Miller *et al.* [22] reported an increase in general oral care needs of patients who are medically compromised in the future.

Due to the advances in medical sciences and technology with better socioeconomic conditions being reflected in better oral health, more natural teeth are retained into the old age [2] and the incidence and prevalence of systemic diseases keep increasing, the demand for medications correlatively increase. In a geriatric study by Helf and Mariotti, 40% of patients were taking at least three medications per day [23]. Radfar and Suresh [24] reported 51% of patients were taking one or more drugs per day. It is estimated that 75% of individuals over 55 years of age are taking some form of drug that contributes to maintaining their vital functions [25]. There is a significant prevalence of patients with medical disorders and who are receiving polypharmacy among individuals requesting dental treatment. As the number of drugs that a patient is taking rises, the risk of interactions between those drugs and medication commonly prescribed in dental practice increases [25]. Dentists must be aware of these drugs and their interactions when they prescribe medications for oral surgical procedures.

Summary

We found a higher prevalence rate of systemic diseases (52.8%) in our study. Diabetes mellitus (38.85%) followed by hypertension (32.25%) were the most common systemic diseases in our study on South Indian population. With an increase in life span, the dental surgeon will be treating more medically compromised patients [26]. Although medical emergencies are rare in dental practice [27,28], they can occur during or as a consequence of a dental procedure, and they may have a fatal outcome. Identification of the medical disorder is of great importance to take the necessary precautions and to avoid the occurrence of life-threatening situations [29]. Recognition of underlying medical conditions should be followed by proper medical consultation, thorough physical examination, and intensive laboratory investigation. This may result in a modification in treatment plan to suit individual patient [30,31]. Dentists must be adequately prepared to treat medically compromised patients and have an up-to-date knowledge of the treatment protocols for various systemic diseases [32,33]. An evaluation and consideration of health status of patients before any surgical treatment in general and oral surgical procedures in particular forms an essential part of comprehensive health-care system.

CONCLUSION

The prevalence of systemic diseases in oral surgery patients is high; therefore, a thorough history taking and careful clinical examination is mandatory before commencing any dental treatment. This will lead to identifying patients with underlying medical condition and will not only result in modifying dental treatment but also most importantly instituting appropriate management.

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