Demographic Study of Prevalence of Systemic Diseases in Oral Maxillofacial Surgery Patients of Central India

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Abstract

Summary An evaluation and consideration of health status of patient prior to any surgical treatment forms an essential part of comprehensive health care. Apparently well but in fact medically compromised patients usually present with unacceptable possibility of complications; whereas adequate pretreatment utilization of many techniques available to diagnose and treat underlying systemic disease significantly decreases morbidity and mortality associated with it.

Aims and Objectives Purpose of this study was to evaluate, prospectively, prevalence of various systemic diseases in oral surgery patients.

Materials and Methods For analyzing prevalence of systemic diseases in oral surgery patients, the patients reporting to oral surgery department for various treatments were prospectively evaluated for a period of 6 months and were grouped according to a system involved and findings analyzed to get prevalence in central India.

Result Of the 12,487 patients who reported to the department 506 (4.055 %) were medically compromised with a highest prevalence of cardiovascular diseases (35.57 %), and least prevalence of infectious diseases (3.55 %). These results are statistically significant (by Chi-square test) at $p < 0.01$ ($\chi^2 = 342.752$).

Conclusion The aim of study was to evaluate prevalence of systemic disease in oral surgery patients of central India

which is 4.055 % with highest population showing involvement of cardiovascular disease and minimum population undergoing oral surgical procedures are compromised by various infectious diseases.

Keywords Prevalence · Systemic diseases · Oral surgery

Introduction

In times when reliability motives of professionals are under constant scrutiny, oral maxillofacial surgeons have immeasurably added to it by extending their horizons to include broad health picture of an individual. An evaluation and consideration of health status of patients prior to any surgical treatment in general and oral surgical procedures in particular forms an essential part of comprehensive health care system. Apparently well but in fact medically compromised patients (here medically compromised term indicates patient whose general condition is deranged because of underlying systemic disease) when presented with oral surgical problems, majority of them are unaware of their systemic status i.e. whether they are healthy or have any systemic disease which increases unacceptable possibility of complications if disease remains untreated [1].

Systemic diseases are responsible for erosion of an organ system's reserve or ability to respond to internal or external stress body type [2]. This diminished adaptive capability results in increased potential for system failure due to maxillofacial pathologies and their surgical procedures. Whereas adequate pretreatment knowledge of involvement of systemic disease may significantly decrease complications associated with surgical procedure, which can be effectively done by utilization of many techniques available to diagnose and treat the underlying systemic

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disease which results in decreased morbidity and mortality associated with systemic diseases which is precipitated by dental treatment.

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 prevalence rate of systemic diseases in oral surgery patients.

Aims and Objectives

1. To find out overall prevalence of various systemic diseases in patients reporting to oral maxillofacial surgery department for various oral surgical procedures.
2. To find out prevalence of individual systemic diseases in patients reporting to oral maxillofacial surgery department for various oral surgical procedures.

Materials and Methods

For conducting this prospective demographic study of prevalence, after approval from local ethical committee, all patients reporting to OPD of Oral Maxillofacial Surgery Department were recorded for a period of 6 months and patients having systemic diseases were grouped according to the system involved under the following headings; all the data so compiled was subjected to statistical analysis by Chi-square test.

GROUP I: Hematological disorders

1. Anemia
2. Leukemia
3. Hemophilia
4. Other bleeding disorders

GROUP II: Cardiovascular disorders

1. Hypertension
2. Congenital heart disease (CHD)
3. Rheumatic heart disease (RHD)
4. Ischemic heart disease (IHD)
5. Patients undergone angioplasty and prosthetic valve replacement

GROUP III: Metabolic disorders

1. Diabetes mellitus (DM)
2. Renal diseases
3. Thyroid problems

GROUP IV: Infectious diseases

1. Tuberculosis
2. Leprosy
3. HIV

GROUP V: Respiratory disorders

1. Bronchial asthma

GROUP VI: Neurological disorders

1. Epilepsy
2. Cerebrovascular Episodes
3. Psychiatric problems

GROUP VII: Multisystem diseases

Patients having more than one systemic disease.

GROUP VIII: Others

This included patients with systemic disease which cannot be considered under the above stated headings.

Review of Literature

Systemic diseases may be thought of as an erosion of an organ system's reserve or ability to respond to internal or external stress. This diminished adaptive capability results in increased potential for system failure due to maxillofacial pathologies and their surgical procedures. From this, perspective it is important to know about patients, systemic disease so as to reduce the amount of tissue damage and improve strategic reserve.

Rothwell and Wagg [1], conducted a survey by preparing a questionnaire to assess the awareness of patients attending a dental center about their medical status and compared the results with usual method of verbal history taking. In this survey they could find that 167 patients had systemic diseases but were not aware of the condition and its relation to dental treatment. Only 4 out of 500 patients were aware about having a systemic disease and its relevance to dental treatment.

Cottone and Katraya [2], carried out a survey to procure information of systemic diseases of dental patients and frequency of drug used by patients for managing them. Two-third of the total patients studied were having positive medical history for at least one problem and more than 50 % of the patients reported multiple medical problems.

Goss [3], studied systemic diseases in terms of adverse reaction between systemic diseases and dental treatment and need of emergency management. Dental treatment of these patient may interact essentially with stability of systemic diseases like co-operation in epileptic or mentally retarded patients, bleeding in patients on anticoagulant therapy, altered healing in diabetes mellitus and long term steroid therapy.

In 1986, Parnell Anthony [4] proposed a screening method for medically compromised patients, especially for patients with diabetes mellitus and hypertension.

Jean and Nam [5] conducted a survey for oral surgery patients and found an incidence of 4.3 % for systemic diseases in oral surgery patients. A similar study was done by Hari et al. [6] who collected clinical data regarding medical condition and medications used by the patients. Out of 900 patients studied, 131 (3.3 %) had systemic diseases.

Trend Inga Berge [7] tried to evaluate medically compromised patients in terms of their extent, scope, referrals and emergencies related to them. In average 6.6 % patients seen as medically compromised in Norwegian dental practice with domination of cardiovascular disorder.

Observations and Results

See Table 1.

Discussion

For analyzing prevalence of systemic diseases in oral surgery patients, the patients reporting to oral surgery department for various treatments were evaluated for a period of 6 months. During this period of the 12,487 patients who reported 506 (4.055 %) were medically compromised. Highest prevalence was seen for cardiovascular diseases (35.57 %), followed by metabolic diseases (20.35 %), hematological diseases (12.84 %), multisystem diseases (13.24 %), other diseases (5.92 %). Neurological diseases (4.34 %), respiratory diseases (4.15 %) were also detected. Least prevalence was seen of infectious diseases (3.55 %). This prevalence of systemic diseases is statistically significant (by Chi-square test) at $p < 0.01$ ($\chi^2 = 342.752$) (Table 1).

Finding of this study are in accordance with study by Jean and Nam [5] in which they could get incidence of systemic diseases upto 4.3 %.

Table 1 Prevalence of systemic diseases in oral surgery patients

Systemic problem	Jun	Jul	Aug	Sept	Oct	Nov	Total	Incidence rate (%)
Anemia	9	13	9	9	8	13	61	
Leukemia	–	–	1	1	–	1	3	
Thalassemia	–	–	–	–	–	1	1	
Group I: Hematological disorders	9	13	10	10	9	14	65	12.84
Hypertension	29	27	30	28	15	29	158	
Rhumatic heart disease	3	1	2	2	1	2	11	
Ischemic heart disease	6	1	–	2	2	–	11	
Group II: Cardiac disorders	38	29	32	32	18	31	180	35.57
Diabetes mellitus	14	15	14	18	9	16	86	
Renal	2	–	1	–	–	1	4	
Thyroid	5	2	3	1	1	1	13	
Group III: Metabolic disorders	21	17	18	19	10	18	103	20.35
Psychological problems	–	–	–	–	1	1	2	
Epilepsy	5	3	2	3	3	4	20	
Group IV: Neurological problems	5	3	2	3	4	5	22	4.34
Bronchial asthma	4	3	4	4	3	3	21	
Group V: Respiratory diseases	4	3	4	4	3	3	21	4.15
HIV	–	–	–	1	–	1	2	
Leprosy	–	1	–	–	–	–	1	
Tuberculosis	2	3	3	3	3	1	15	
Group VI: Infectious diseases	2	4	3	4	3	2	18	3.55
Group VII: Multisystem involvement	11	13	12	8	11	12	67	13.24
Group VIII: Other	6	5	2	7	4	6	30	5.92
Total number of patients with systemic problems	96	87	83	87	62	91	506	4.06
Total number of OPD patients	1,979	2,744	2,040	2,190	1,760	2,344	12,487	

Chi-square test $\chi^2 = 342.752$, $p < 0.01$

Hari et al. [6] in a study conducted at Calicut, in the past saw a prevalence rate of systemic disease in dental patients up to 14.5 % whereas in the present study the prevalence is much less. This might be attributed to the fact that the present study considered systemic status of patients undergoing surgical procedures whereas the study by Hari et al. [6] considered patients seeking any of the dental treatments although highest prevalence of cardiovascular diseases and diabetes is observed in both studies.

The study by Cottone and Katraya [2], showed prevalence rate of medically compromised patients in dental practice as 35.3 % with highest prevalence for cardiovascular diseases followed by metabolic diseases.

Trend Inge Berg [7], stated that the incidence rate of medically compromised patients in Norwegian dental practice is 6.6 % with highest prevalence of cardiovascular disease similar to the present study.

The above studies prevalence of systemic diseases among general population reporting for any dental treatment whereas in our study we have considered patients needing only oral surgical treatment.

Conclusion

In this demographic study of population of central India, the prevalence of systemic diseases in oral surgery patients

was seen to be 4.055 % with highest prevalence of cardiovascular disease (35.57 %) followed by metabolic disorders (20.35 %), hematological disorders (12.84 %) and minimum incidence (3.55 %) of infectious diseases.

References

1. Rothwell PS, Wragg KA (1972) Assessment of the medical status of patients in general dental practice. *Br Dent J* 133:148–152
2. Cottone HA, Katraya H (1979) Medications and health histories: survey of 4365 dental patients. *J Am Dent Assoc* 98:713–718
3. Alastir Goss N (1984) The dental management of medically compromised patients. *Int Dent J* 34:227–231
4. Parnell Anthony G (1986) The medically compromised patient. *Int Dent J* 36:73–82
5. Jean JH, Nam IW (1989) Investigations in oral surgery patients and their treatment, teaching chukka Usa Hypha Chi, 27(1):83–90
6. Hari S, Oomen Aju Jacob, Mangalam MK (1992) Systemic health status of adult dental patients and its dental care, study of 900 out patients. *JIDA* 63:301–303
7. Trend Inge Berg (1992) Oral surgery in Norwegian general dental Practice a survey extent, scope, referrals, emergencies and Medically compromised patients. *Acta Odontol Scand* 50:7–16