

Prevalence based Epigrammatic Study of Oral Cancer and Other Mucosal Disorders in Patients of Southern Indian Region: An Original Research Study

Usha V A^{1*} Anuradha M² Neel V Hiremath³ Swamy M C L⁴ Pramod Kumar Jali⁵ Shruthi Mavinahally Shanmukhappa⁶

¹Reader, Department of Oral Medicine and Radiology, College of Dental Sciences, Davanagere, Karnataka, India.

²Reader, Department of Oral and Maxillofacial Surgery, College of Dental Sciences, Davanagere, Karnataka, India.

³Reader, Department of Conservative Dentistry and Endodontics, College of Dental Sciences, Davanagere, Karnataka, India.

⁴Reader, Department of Oral Medicine and Radiology, College of Dental Sciences, Davanagere, Karnataka, India.

⁵Reader, Department of Oral Pathology and Microbiology, College of Dental Sciences, Davanagere, Karnataka, India.

⁶Reader, Department of Periodontics, Subbaiah Institute of Dental Sciences, Purle, Shimoga, Karnataka, India.

ABSTRACT

Background: The sole aim of this study is to explore any relationship of patient's age, existing medical conditions, advanced dental therapies, habits and dentures with oral cancer and other mucosal disorders.

Materials and Methods: Authors screened total 150 patients in the age range of 60 to 80 years. For the purpose of grouping and ease of statistical analysis, the studied patients were divided into three groups. Group A consisted of patients in age range of 60-65 years, Group B: 66-70 years, Group C: 71 years and above. Dentures were also examined for any overextensions, ill fitting borders and sharp impinging margins. All unusual soft or hard tissue findings (lesions) were also noted down critically. Informed consent was taken from the respondents those were willingly ready for participation in the study. Results thus obtained was tabulated and subjected to basic statistical analysis. P value less than 0.05 was considered significant ($p < 0.05$).

Results: Statistical analysis was completed using statistical software Statistical Package for the Social Sciences version 21. The Group A consisted of 29 males and 21 females, Group B consisted of 24 males and 26 females and Group C consisted of 27 males and 23 females. The patients in all the three groups gave the history of existence habit like betel quid/ betel quid and alcohol/ betel quid and smoking/ smoking/ smoking and alcohol. There was no statistically significant difference between the three groups. When evaluating associated denture related dilemmas, we noticed that in Group A; total 12 patients reported that. Similarly, 8 and 11 patients in Group B and C respectively. P value was reported to be significant here.

Conclusion: Within the limitations of the study authors concluded that in the studied population, oral cancer and oral mucosal lesions was closely inter-related with oral habits and prolonged usages of faulty or defective dentures. Factors like age showed minimal influence on oral cancer and oral mucosal lesions however, the outcomes of this study must be considered as indicative for anticipating clinical results of such critical situations.

Keywords: Oral cancer, Oral mucosal lesions, Prevalence, Leukoplakia.

INTRODUCTION

As we all know that oral cancer is amongst the universally seen cancers in the world. Each year,

about 300,000 new cases of oral cancer are identified worldwide. It also responsible for more

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*Correspondence Dr. Usha V A.

Department of Oral Medicine and Radiology, College of Dental Sciences, Davanagere, Karnataka, India.

Email: drausha@gmail.com

than 149,000 deaths annually.¹⁻³ Literatures have shown that oral cancer is the eighth most common form of cancer in the world. It illustrates more than 92% of all malignant neoplasms of the oral cavity. It causes more often from fifty years of age, and males more often than women, in a ratio of about 2:1. Many of the related studies have shown that five-year survival of patients with early oral cancer is between 56% and 61% and it decreases to 32% and 42% in cases of advanced oral cancer.⁴⁻⁸ Such cancers are frequently coupled with the usages of tobacco, betel quid, areca nut, smoking, and alcohol consumption. Chronic mucosal trauma resulting from sharp teeth, dentures, faulty restoration, or implants has repeatedly been connected with the growth of oral cancer. However, the ultimate substantiation for the same is missing in the studies so far. Oral mucosa is generally abused as a result of repeated injuring by the mechanical stroke of an intraoral causative factor. Misaligned teeth, ill-fitting dentures (sharp or rough surfaces, lack of retention, stability or overextended flanges) and/or para-functional habits (e.g. oral mucosa biting or sucking, tongue interposition or thrusting), acting individually or together, could all be responsible for any mechanical irritation. Chronic intraoral malignancies might develop changes in the healthy mucosa or intensify previous oral diseases. Chronic intraoral malignancies can also generate numerous changes related to its duration and strength. Oral mucosa can host many lesions initiated or triggered by chronic mechanical irritation by misaligned teeth or dentures, and it has been proposed as risk factor for oral cancer. Nonetheless, the characteristics of chronic intraoral malignancies in oral cancer and other lesions are not comprehensively studied.⁹⁻¹⁰ However, in the developed countries like India, carcinoma of buccal mucosa is comparatively uncommon as compared to other countries. The comparatively high occurrence of oral cancer in India is largely due to exceptionally popular use of the smokeless tobacco product called gutkha and betel quid chewing (with or without tobacco), which provides its population and particularly its youth to a greater risk of developing oral submucous fibrosis, a premalignant disease resulting in increased incidence of oral cancer in younger patients. Considering all these intermingling factors, authors have genuinely attempted here to explore any relationship of patient's age, existing medical conditions, advanced

dental therapies, habits and dentures with oral cancer and other mucosal disorders.

MATERIALS AND METHODS

The study was conducted on the patients visiting department of oral medicine and radiology, wherein authors screened total 150 patients in the age range of 60 to 80 years. For the purpose of grouping and ease of statistical analysis, the studied patients were divided into three groups. Group A consisted of patients in age range of 60-65 years, Group B - 66-70 years, Group C - 71 years and above. Any suspected oral tissue scrapes or intended samples were attempted to obtain by standard logical manner whenever required. This particular method was used so as to avoid any biasness among different genders and age groups. The significance of this study was explained in detail to all participating patients. Informed consent was taken from the respondents those were willingly ready for participation. Results thus obtained was tabulated and subjected to basic statistical analysis. P value less than 0.05 was considered significant ($p < 0.05$). All patients were also casually interviewed about their oral health, education, income, occupation, oral health related complaints, self-assessed general health, use of dentures, history of habit, chewing tobacco, smoking or consuming alcohol. Authors also attempted to enquire in detail about the present medical history of the participating patients. Examinations, identification and diagnosis of any intraoral lesion or oral cancer and other mucosal lesions were attempted by an experienced and trained dentist. A standardized intra and extraoral examination was conducted. All unusual soft or hard tissue findings were noted down. Authors have not intended to perform any histopathological examination or confirmation as it was a study solely based on clinical observations. All edentulous patients were also comprehensively examined for their existing dentures and their associated habits. Dentures were also examined for any overextensions, ill fitting borders and sharp impinging margins. Artificial denture were further evaluated for their stability, tooth wear and structural integrity, denture stomatitis, denture related hyperplasia and angular cheilitis.

RESULTS

Responses which observed from intended work out were sent for statistical analysis using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The resulting data was subjected to suitable statistical tests to obtain p and other related inferences. We included only old aged patients those were falling in the age range of more than 60 years. A total of 150 patients studied in this paper. For the purpose of grouping and ease of statistical analysis, the studied patients were divided into three groups. Group A consisted of patients in age range of 60-65 years, Group B: 66-70 years, Group C: 71 years and above. The Group A consisted of 29 males and 21 females, Group B with 24 males and 26 females and Group C with 27 males and 23 females. There were dissimilar similar proportions of male and females in the three groups and statistically significant difference was noted in Group C (Table 1 & Graph 1). Patients were asked about their systemic health problems wherein we noticed no significant and

Table 1: Age & gender wise distribution of practitioners.

Group	Age (Yrs)	Male	Female	Total %	Mean	Level of Significance (p value)
A	60-65	29	21	50 [33.3 %]	23.67	0.09
B	66-70	24	26	50 [33.3%]	21.87	0.63
C	>71	27	23	50 [33.3%]	28.70	0.01*
-	Total	80	70	150 [100%]	-	*Significant

*p<0.05 significant

Table 2: Association of genders and other factors in three groups.

Particulars	Group A	Group B	Group C	Std. Deviation	Std. Error	95% CI	Level of Significance (p value)
GENDER							
Males	29	24	27	1.424	0.876	1.634	0.60
Females	21	26	23				
Oral or Dental problems	13	11	14	1.565	0.442	2.34	0.36
Existence of habits	12	15	13	2.345	0.786	1.23	0.08
Existing denture	13	16	12	1.276	1.520	1.98	0.01*
Denture related dilemmas	12	8	11	1.562	2.734	1.95	0.02*

*p<0.05 significant

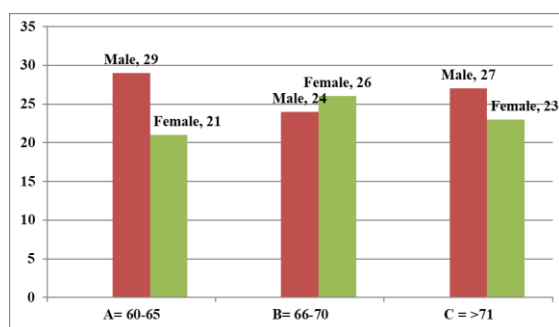
noticeable finding. The patients in all the three groups gave the history of existence habit like betel quid/ betel quid and alcohol/ betel quid and smoking/ smoking/ smoking and alcohol. There was no statistically significant difference between the three groups (Table 2). In Group A, it was reported in 12 patients, in Group B: 15 and in Group: C 13 patients. In Group A, total 13 patients were having dental health problems while in Group B: 11 and in Group: 14 patients. In Group A, approximately 13 patients reported to wear dentures while in Group B: 16 and in Group: C 12 patients. P value was reported to be significant here. When evaluating denture related dilemmas, we noticed that in Group A; total 12 patients reported that. Similarly, 8 and 11 patients in Group B and C respectively. P value was reported to be significant here. Distribution and comprehensive statistical analysis of mucosal lesions in three groups were explained and illustrated in detail in Table 3.

Table 3: Distribution of mucosal lesions in three groups [with applicable statistical analysis and inferences]

Mucosal lesion	Group A	Group B	Group C	Total	Std. Deviation	Std. Error	95% CI	Level of Significance (p value)
White Lesion Sign	14	15	17	46	1.346	0.078	1.96	0.086
Pigment Sign	15	16	9	40	0.434	0.035	1.96	0.090
Any Enlargement	4	5	7	16	0.276	0.025	1.96	0.080
Ulceration Sign	3	8	8	19	0.352	0.029	1.96	0.900
Red Lesion Sign	4	5	6	15	0.132	0.016	1.96	0.500
Malignancy	10	1	3	14	0.349	0.033	2.33	0.430
Total	50	50	50	150	-	-	-	-

* $p < 0.05$ significant

Graph 1: distribution of the patients among various age groups.



DISCUSSION

As we all know that the malignancies of the buccal mucosa are the most common oral cavity cancer in the south East Asian subcontinent. Furthermore, oral cancer is one of the most deadly community health dilemmas in the south East Asian subcontinent. In India, oral cavity cancer is the second chief cancer as compared to other cancers. India alone responsible for a quarter (79,000 cases) of total number of oral cancer cases reported across the world.¹¹⁻¹⁴ Malignancy in the oral cavity is frequently preceded by precursor lesions. Generally, nine oral mucosal diseases are known to have a high risk of malignant transformation. The reason differs from disease caused by exogenous factors such as tobacco and autoimmune inflammation to idiopathic or inherited genetic aberrations. The malignancy occurrence is expected to rise to 28 million cases and 18 million deaths per year in 2030. Lip and oral cavity cancer accounted for 149,000 deaths worldwide in 2013 (2.5 % of total cancer cases). The relative occurrence of oral

cancer in various regions in the world is always dissimilar. Western Africa had the lowest incidence both among males and females (1.7 and 1.4 per 100,000, respectively) in 2012, while Melanesia had the highest incidence both among males and females (22.9 and 16.0 per 100,000, respectively) in 2012.¹⁵⁻²⁰ Among the continents, Asia has the highest incidence of lip and oral cancer and 168,850 cases were reported in 2012. Leukoplakia present as white patches or plaques that cannot be rubbed off cannot be characterized clinically or histologically as any other condition. The diagnosis is defined as “white plaques of questionable risk having excluded (other) known diseases” or “disorders that carry no increased risk for cancer”. On the basis of the clinical representation, leukoplakia may be classified into homogeneous and non-homogeneous types. Oral Cancer imparts to one of the important causes of mortality in human beings. These imminent malignancies conversely may present clinically with alarming signs and symptoms which is often neglected due to the lack of awareness in the population.²¹⁻²³ Nevertheless, there are developments in diagnosing early stage of oral cancer, the detection rate is continued to be minimal. Literature exploration has already proved that a strong association exists between early diagnosis and better prognosis in this malignancies.²⁴ Hence, knowledge regarding these warning indicators will certainly facilitate the clinicians to discover early cancer and provide an overall benefit pertaining to treatment in these patients. Here in this paper, authors have genuinely attempted here to explore any relationship of patient’s age, existing medical conditions, advanced

dental therapies, habits and dentures with oral cancer and other mucosal disorders. They have also outlined certain very significant findings in these perspectives.

CONCLUSION

Within the limitations of the study authors concluded that in the studied population, oral cancer and oral mucosal lesions was closely inter-related with oral habits and prolonged usages of faulty or defective dentures. Authors have clearly shown that the factors like age showed minimal influence on oral cancer and oral mucosal lesions however, the outcomes of this study must be considered as indicative for anticipating clinical results of such critical situations. Nevertheless, we expect some other large scale studies to be conducted that could further set certain authentic norms in this prospective.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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