Social profile and habits of oral cancer patients in Ibadan

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Summary

Objectives: The aim of this study was to compare the socioeconomic profile and social habits of oral cancer patients and those of control subjects in order to investigate the relative importance of these risk factors in the occurrence of oral cancer.

Study design: Thirty-two histologically diagnosed oral carcinoma patients and 30 normal patients were recruited at the dental centre University College Hospital, Ibadan. A 33-item questionnaire was administered to the two groups. The data obtained was analyzed using student t test and chi square as appropriate as well as odds ratio.

Results: Incomes less than 50,000 naira per annum, absence of fruit in every diet and tobacco use, were associated with 5.7, 3.0 and 4.05 increased risk of oral cancer respectively.

Conclusion: Low income, fruit depleted diet and tobacco use seems to be the most important risk factors for oral cancer development in the studied environment.

Keywords: *Social status, habits, oral cancer*

Résumé

Cette étude était conduit pour comparer le profile socioéconomique et les habitudes sociaux des patients ayant le cancer oral et le groupe de contrôle dans le but d'évaluer l'importance relative des facteurs a risqué dans l'incidence de cette maladie. Trente-deux cas de carcinomes oraux et trente cas normaux diagnostiqués histologiquement étaient recrutés au centre dentaire du centre universitaire hospitalier, Ibadan. Un questionnaire de 33 questions était administré aux différents groupes. Les sonnées obtenues étaient analyses en utilisant le test t et chi square pour la comparaison et les proportions. Les revenus de moins de 50,000 Naira par an, l'absence de fruit à chaque repas et usage du tabac, étaient associés avec 5.7, 3.0 et 4.05 d'augmentation de risque du cancer oral respectivement. Le faible revenu, le manqué de fruits pendant les repas et l'usage du tabac semblaient être les facteurs à risqué les plus important du développement du cancer oral dans l'environnement étudié.

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Introduction

Oral cancers rank amongst the ten most common cancers worldwide and show marked geographical variation in occurrence [1,2]. The highest rates of oral cancer have been reported in some developing countries, particularly India, Sri-Lanka, South Vietnam, Papua New Guinea, the Philippines, Hong Kong and Taiwan [3]. Major risk factors for oral cancer include social habits like consumption of tobacco, alcohol and areca nut (betel quid) [4,5] Increased consumption of fruits and vegetables reduces oral cancer risk while human papilloma virus infection may contribute to an increased risk [6]. Low-income and disadvantaged groups are generally more exposed to avoidable risk factors such as environmental carcinogens, alcohol, infectious agents, and tobacco use [6]. Previous studies from America and India have shown an inverse relationship between income and educational status and oral cancer prevalence [7,8]. Nigeria has about 71% of its population of about 150 million people living on less than \$1 per day [9] and an adult literacy level of 55.3 % [10]. This may be an indication that a considerable number of people in the population are at risk of developing oral cancer based on their low socio-economic profiles.

This study aims to compare the socioeconomic profile and social habits of oral carcinoma patients and those of a control group presenting at the Dental Centre University College Hospital Ibadan in order to investigate the relative importance of these risk factors in the occurrence of oral cancer.

Materials and methods

Thirty-two histologically diagnosed oral epithelial carcinoma patients and thirty normal patients were recruited over 18 months at the Dental Centre University College Hospital Ibadan. Ethical clearance was obtained from the joint ethical committee of University of Ibadan and University College Hospital. A 33-item self administered questionnaire containing sections on bio-data, habits such as

alcohol and tobacco use, including income and educational status, was administered to sixty-two patients(Thirty-two oral cancer and thirty controls) who consented to participate in the study.

The data obtained were analyzed using SPSS Statistical Package (SPSS, Version 11.0). Differences between the two groups were analyzed for significance using the student t- test and chi square and odds ratio, statistical significance was determined at $p < 0.05$.

Results

The mean age of patients with oral epithelial cancer was 53.7 years (SD±17.3), while that of normal patients was 54.8 years (SD±10.9), ($p = 0.78$).

Figure 2 shows a bi-modal peak income for oral epithelial cancer patients in the income groups of 0-10,000 Naira and 20,000-50,000 naira while the control patients had a higher peak income of 50,000 to 200,000 Naira. There was also a sharp drop in the proportion of oral epithelial cancer cases as income increased to 50,000 Naira level. There was a statistically significant difference in the incomes of the oral cancer patients and the control group ($p=0.018$).

Tobacco

Only 26.1% of patients with diagnosis of oral cancer in this study use tobacco, however, this was much
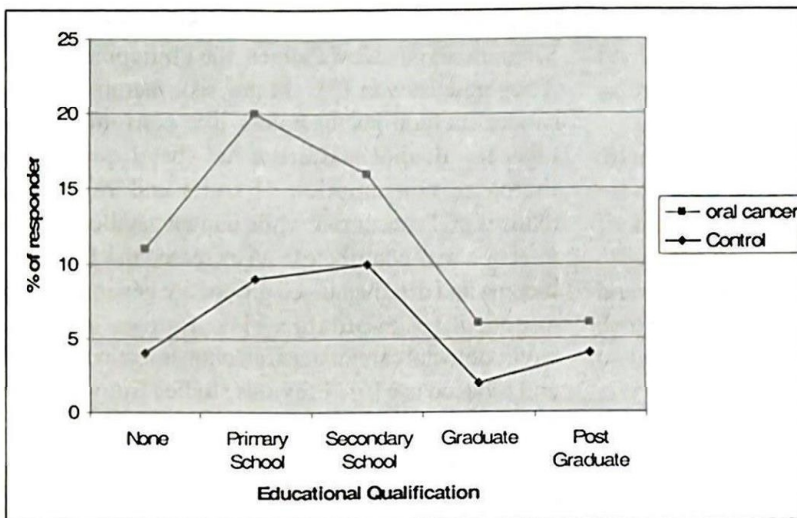
Fig. 1: Educational qualification of patients showing drop in percentage of respondents with oral cancer from post-primary education level.

Educational qualification

In the oral epithelial cancer group, 23.3% had no formal education while only 13.3% of the normal patients had no formal education. There was a sharp drop in the percentage of patients with increasing level of education in oral epithelial cancer group as compared with the normal group (Fig 1). However, there was no statistically significant difference in the level of education between the two groups ($p= 0.304$).

Income per Annum

Oral epithelial cancers occurred more commonly in patients in the lower income groups, with a total of 79.3% of oral epithelial cancer patients earning less than 50,000 Naira per annum (lower than one dollar per day). Only 13.7% earn above 50,000 Naira per annum. 40% of the control patients earn 50,000 Naira or less, while up to 60% earn 50,000 Naira and above.

higher than the 6.9% who use tobacco in the control patients. There was, however no statistically significant difference in tobacco use in the oral cancer group and the controls ($p= 0.106$).

Alcohol

Most people in this study do not take alcohol and only 25.8% of oral cancer cases reported that they take alcohol and 24.1% of the control group take alcohol while 12.5% reported they use both tobacco and alcohol. There was no statistical significant difference in alcohol use in the oral cancer group and the control group ($p=0.881$)

Diet

All the oral cancer group claim they take leafy vegetables as part of their diet but only 20% take vegetable every day compared with 25% in control group that take vegetables everyday. Only 9.5% of
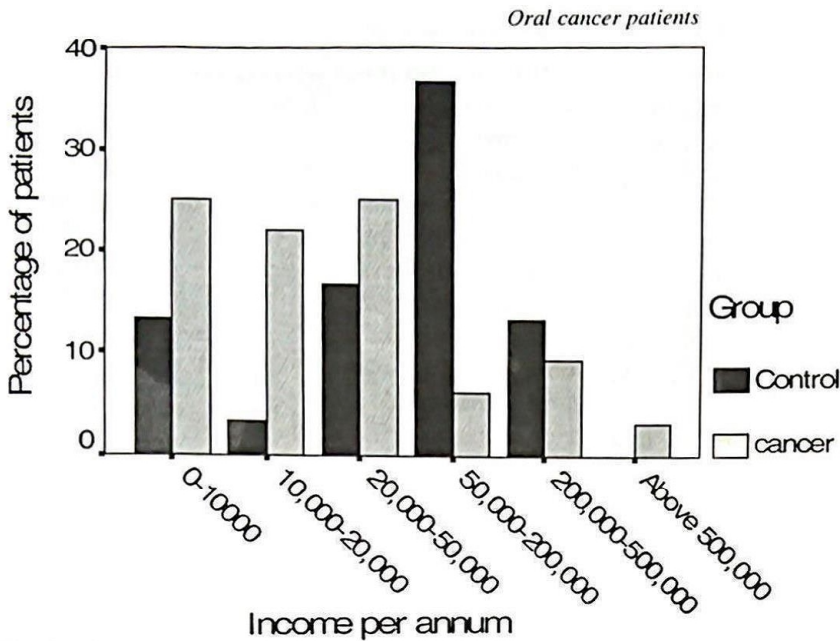
Fig. 2: Shows most oral cancer patients earn less than 50,000naira per annum.

the oral cancer patients take fruits after every meal compared to 18.5% of the control group that take fruits after every meal. There was however no statistical significant difference in fruit and vegetable consumption between the oral cancer group and the control group (p=0.658, and p=0.186 respectively). Subjects who had Income less than 50,000 naira per annum, fruits depleted diet and tobacco use, had a higher risk of developing oral cancer (odds ratios of 5.7, 3.0 and 4.07 respectively) compared with those who had low education, alcohol use and vegetable depleted diet (odds ratios of 1.04, 1.09 and 1.32 respectively) (Table 1).

Discussion

relationship with lip and tongue cancer. It is possible that people with little education are more likely to engage in risk factors that predispose to oral cancer as some authors also reported an inverse relationship between tobacco use, alcohol drinking and socio-economic status [7,11]. Kerr *et al* [12] in a study in the United States reported that in addition to higher prevalence of alcohol and tobacco use, people in lower socio-economic groups were more likely to consume less fruits and vegetables.

There was a statistically significant difference in the income per annum of oral cancer patients compared to the control group in this study with more oral cancer patients earning less than 50,000 naira

Table 1: Habits and social profile and risk of oral cancer

Social profile and Habits	% with oral cancer (N=32)	% of control (N=30)	p	OR	95% CI
Income<50,000	79.3	40	0.004	5.75	1.72, 19.15
Alcohol intake	25.8	24.1	0.881	1.09	0.34, 3.53
Tobacco intake	23.1	6.9	0.131*	4.05	0.74, 22.20
No Regular fruit intake	93.8	83.3	0.186	3.0	0.54, 16.81
No secondary education	80.0	79.3	0.611	1.04	0.294, 3.71
No daily vegetable intake	81.3	76.7	0.658	1.32	0.37, 4.50

Fischer's exact test was used

In this study oral cancer occurred more frequently in individuals with low or no formal education and 80% of oral cancer patients seen did not have a university education. This is similar to a study by Williams [8] who that showed college education had an inverse

per annum (approximately $1 per day) compared to the control group.

This is similar to the finding of a study in India which showed that oral premalignant lesions were commoner in people with low household income with

those earning less than 1,500 rupees having the highest incidence while those who earn more than 3,000 rupees had the lowest incidence of oral cancer [13]. They found that people in the high income group were more likely to consume fruits and vegetables regularly. The lower socio-economic groups are also more likely to have less access to the health services and health education that would empower them to make decisions to protect and improve their own health [14] Johnson et al [15] in a study in Canada found that people of lower socio-economic class were less likely to visit their dentists regularly, and suggested that part of the association between lower socio-economic class and increased incidence of oral cancer could be due to poor oral hygiene.

The effects of income and education reported have certain limitations, because they are self reported and some people are reluctant to volunteer these information especially income. In addition incomes reported may not be accurate, since it does not usually put into consideration savings and other assets owned by patients and income may vary over a life time.

Only 26.1% of oral cancer cases in this study reported that they use tobacco in any form while 25.8% use alcohol and 12.5% reported they use both tobacco and alcohol. Arotiba et al [16] reported that 49% of patients presenting with oral squamous cell carcinoma in Ibadan had positive history of predisposing factors such as tobacco and alcohol use. Many studies have shown higher percentage of tobacco use in oral cancer patients. Blot et al[17] in a study in the United States found 75% of oral cancer cases are associated with tobacco smoking and heavy alcohol use. Majority (82%) of oral cancer cases in Poland reported that they use tobacco compared to 65% in their control group [18] The low percentage of oral carcinoma patients presenting with alcohol and tobacco use in this study, suggest that the role of other aetiologic factors such as nutritional defiencies [2] infections such as HPV [2,19] and genetics may be more prominent in this study group. Previous studies in Nigeria had shown that most oral cancer patients do not use tobacco and alcohol [20,21]

In this study, 100% of the oral cancer group take vegetables as part of their diet but only 20% take vegetable daily, which was lower than the 25% in control group who reported that they consume vegetables daily. Only 9.5% of the oral cancer patients reported that they take fruits after every meal compared to 18.5% of the control group that reported that they take fruits after every meal. In the present study, subjects who do not take fruits with every meal had a risk ratio of 3.0 while those who do not take vegetable daily had a risk ratio of 1.3. Winn et al

[22] found that those who consumed fruit once per week or less had 1.7 times the risk of those who consume fruit seven times a week or more while McLaughlin et al [23] found that those in the lower quartile of fruit intake had a risk ratio of 1.7 for men and 2.0 for women, Winn reported that seven studies found no association between oral cancer and vegetable intake [22].

Francescin et al [24] in a study in Italy observed only selected vegetables such as carrots, fresh tomatoes and green peppers had protective effect for oral cancer . In a study in India, Notani et al [25] showed that those who did not eat vegetables had twice the risk of oral cancer as those with daily consumption. The protective effects of fruit and vegetables consumption has been attributed to their antioxidant vitamins (Vitamins A, C and E) content which help mop up free radicals in the body and contribute to host immunity against cancer development [4]

Although it may be difficult to make categorical conclusions because of the small sample size, this study showed that low income, low fruit consumption and tobacco consumption appears to be more important risk factors for oral cancer occurrence than low education, alcohol use and irregular vegetable consumption. Further studies investigating the role of genetics and inheritance, other environmental factors and the possible interaction of all these risk factors in the occurrence of oral cancer are desirable.

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