Epidemiological Profile of Patients Diagnosed with Oral Squamous Cell Carcinoma in Passo Fundo, Brazil

Perfil Epidemiológico de Pacientes Diagnosticados com Carcinoma Epidermoide Oral em Passo Fundo, Brasil

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ABSTRACT

Introduction: The squamous cell carcinoma is a pathology accounting for 90% of all the malignant tumors found in the oral cavity. **Objective**: This study aimed to assess the epidemiological profile, treatment, and survival of patients diagnosed with oral squamous cell carcinoma at a reference hospital of the northern region of the state of Rio Grande do Sul, Brazil. **Method**: Retrospective observational study with analysis of the patients' charts diagnosed with this condition from 1993 to 2008 at this hospital database. The data collected were analyzed using the statistical program SPSS version 18 utilizing parametric and non-parametric tests. **Results**: From the 303 charts analyzed, 88.4% were men, Caucasian, leukoderma, with higher incidence in the age range between 51 to 60 years old. The association of alcohol with tobacco was detected in 84.7% of the patients. The most affected site was the tongue (45.5%), and most of the cases were diagnosed in late stages III and IV, with survival of 17.83 months. Although surgical treatment has been performed more frequently (55.9%) and presented higher survival rates, its statistical significance in comparison with other treatments was not demonstrated (p=0.185). **Conclusion**: The epidemiological profile of patients is very similar to the charts of several countries. In the present case, the late diagnosis significantly decreased life expectancy of patients (2.5-fold), and that the treatment, and the initial site of the lesion had no significant influence on survival.

Key words: Mouth Neoplasms; Survival Rate; Health Profile; Carcinoma, Squamous Cell; Prognosis.

RESUMO

Introdução: O carcinoma epidermoide é uma patologia que corresponde a 90% dos tumores malignos da cavidade oral. **Objetivo**: Avaliar o perfil epidemiológico, o tratamento e a sobrevida dos pacientes diagnosticados com carcinoma epidermoide oral em um hospital referência na Região Norte do Estado do Rio Grande do Sul, Brasil. **Método**: Estudo observacional retrospectivo, com análise dos prontuários dos pacientes com diagnóstico dessa patologia, no período de 1993 a 2008, no banco de dados desse hospital. Os dados foram analisados pelo programa estatístico *SPSS* versão 18 utilizando testes paramétricos e não paramétricos. **Resultados**: Foram coletados e analisados dados de 303 prontuários que revelaram que 88,4% eram homens, leucodermas, com maior incidência na faixa etária entre 51 e 60 anos. A associação de álcool e tabaco foi observada em 84,7% dos pacientes. O local mais afetado foi a língua (45,5%) e a maioria dos casos apresentou estádios tardios III e IV com uma sobrevida de 17,83 meses. Embora o tratamento cirúrgico tenha sido o mais realizado (55,9%) e apresentado a maior sobrevida, não foi observada significância estatística deste com relação aos demais tratamentos (p=0,185). **Conclusão**: O perfil epidemiológico dos pacientes é muito semelhante aos registros de vários países. Neste caso, o diagnóstico tardio diminuiu significativamente a expectativa de vida dos pacientes (2,5x), e o tratamento executado bem como o local inicial da lesão não tiveram influência significativa na sobrevida.

Palavras-chave: Neoplasias Bucais; Taxa de Sobrevida; Perfil de Saúde; Carcinoma de Células Escamosas; Prognóstico.

RESUMÉN

Introducción: El carcinoma de células escamosas es una patología que corresponde aproximadamente a 90% de los tumores malignos de la cavidad bucal. **Objetivo**: Evaluar el perfil epidemiológico, el tratamiento y la sobrevida de los pacientes diagnosticados con carcinoma epidermoide oral en un hospital referencia en la región norte del estado de Rio Grande do Sul, Brasil. **Método**: Estudio observacional retrospectivo con los prontuarios de los pacientes con el diagnóstico de esa patología en el período de 1993 a 2008, en el banco de datos de este hospital usando el programa estadístico SPSS versión 18 usando pruebas paramétricas y no paramétricas **Resultados**: Se recogieron y analizaron datos de 303 prontuarios, que revelaron que 88,4% eran hombres, leucodermas, entre 51 a 60 años. La asociación de alcohol y tabaco fue observada en el 84,7% de los pacientes. El local más afectado fue la lengua (45,5%) y la mayoría de los casos ha presentado estadios tardíos III y IV con una sobrevida de 17,83 meses. Aunque el tratamiento quirúrgico fue el más realizado (55,9%) y presentado la mayor sobrevida, no se observó la significancia estadística de éste con relación a los demás tratamientos (p=0,185). **Conclusión**: El perfil epidemiológico de los pacientes es muy similar a los registros de varios países. En este caso, el diagnóstico tardío disminuyó significativamente la expectativa de vida de los pacientes (2,5x) y el tratamiento realizado, así como el lugar inicial de la lesión no tuvieron influencia significativa en la sobrevida.

Palabras clave: Neoplasias de la Boca; Tasa de Supervivencia; Perfil de Salud; Carcinoma de Células Escamosas; Pronóstico.

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INTRODUCTION

Nearly 10% of the malignant tumors of the human body are found in the mouth, the sixth most incident worldwide. Excluding cancer skin, buccal cancer can be considered the most common in the head and neck. Oral squamous cell carcinoma is a pathology that accounts for 90% of the malignant tumors of the oral cavity[1-3].

Buccal cancer is a public health problem, it is important to know its magnitude in Brazil regarding its geographical distribution with stratification per age and gender as base for its control. The disclosure of statistical data is required not only to know the national status but to stimulate health professionals to prevent and diagnose buccal cancer[1-5].

It seems clear the necessity to change the strategy to control non-communicable diseases combining preventive actions specially early diagnosis and therapeutic measures for health promotion, protection, and diagnosis as the population ages and grows further to industrialization and urbanization aggravated by insufficient coverage of health services[6,7]. This study has the objective of evaluating the epidemiological profile, form of treatment and relation with patients' survival who were diagnosed with oral squamous cell carcinoma and submitted to oncologic treatment in Hospital São Vicente de Paulo (HSVP) of Passo Fundo, State of Rio Grande do Sul (RS) from 1993 to 2008.

METHOD

The Institutional Review Board of the "*Universidade de Passo Fundo*" approved the study, number 302/2011. The information were collected in the database of the Oncology of HSVP of Passo Fundo, RS from 1993 to 2008 and exported to electronic chart.

Some information were priority as sex (male and female), age (grouped by decade of life), ethnicity (leukoderma and non-leukoderma), tumor staging, follow-up, type of treatment among other; however, in some registries, these information were incomplete. Of the 327 patients included in the database, 203 had no follow-up information, the current status of the patient was unknown.

For statistical purposes, staging was grouped in I and II, III and IV (A, B and C). The sites were tongue, mouth floor, palate and other unspecified. Smoke and alcohol use were classified as habits and included in the statistical analysis, the level of education followed the classification of the National Education System.

Family history, former cancer diagnosis, type of treatment and death or not were recorded too and utilized

in the statistical analysis. In double-checking, the variables without information or classification were discarded and occasional groupings were made to favor the analysis according to the description of the results.

Patients were contacted by telephone to obtain updated information. When not possible, the information were searched at the Rio Grande do Sul Health State System and Mortality Information System (SIM) for the period 1996-2009. Other data were collected with the Health Municipal Secretaries reported in the patients' charts at the admission and if not obtained, the county civil registers were searched.

Of the 327 patients listed in the HSVP database, 24 were excluded for several reasons: for 20 patients there was no information, one patient died in another Brazilian State because of cancer at unknown date, one suicided and another was assassinated.

The data collected were analyzed with the SSPS program version 18 utilizing parametric tests (correlation of Pearson; Kolmogorov-Smirnov) and non-parametric (Kruskal-Wallis; Mann-Whitney; Fischer). The analysis of the association among staging, type of treatment and survival was made with other variables.

RESULTS

Of the 303 patients included in the analysis of the data, 88.4% (n=268) were men and only 11.6% (n=35), women, the ratio M:W was 1:73.

The most affected age-range by the pathology was 51-60 years of age with 37% of the cases (n=111), followed by 62-70 years, representing 25% of the sample (n=75). The mean age of the patients affected by the carcinoma was 58.18 years in the range of 30 to 85 years.

The analysis of the level of education for 78.5% (n=238) who disclosed this information revealed that 78.6% (n=187) completed elementary school, 10.9% (n=26), high school, 5.9% (n=14) were illiterate and 4.6 (n=11) attended university.

Ethnicity information were adjusted for statistical purposes: leukoderma, 93.4% (n=283) and non-leukoderma (melanoderm and xanthoderm) with 6.6% (n=20).

51.5% (n=156) reported cancer family history, of which 38.5% (n=60) in the family in comparison with 61.5% (n=96) who did not report.

The patients not diagnosed earlier reached 69.3% (n=210), 22.8% (n=69) who were diagnosed were not treated and 7.9% (n=24) were diagnosed and treated formerly.

Tobacco was reported in 74.6% (n=226) of the charts, 90.7% (n=205) of the patients reported they used. Alcohol

use was informed by 69.0% (n=209) of the patients, of these, 87.1% (n=182) reported alcohol abuse. Tobacco and alcohol were detected in 84.7% (n=177) of the patients.

The topography location of the initial lesion was grouped as follows: tongue, 45.5% (n=138), other unspecified sites, 23.8% (n=72), palate, 13.2% (n=40), mouth floor, 11.9% (n=36), lip, 4.3% (n=13), gum, 1.3% (n=4).

Tumor staging at diagnosis was found in 65% of the charts (n=197). Most of the cases, 77.2% (n=152), were at advanced staging III and IV against 22.8% (n=45) at the initial staging I and II. The distribution of the cases is shown in Table 1.

The treatment of each case – surgery (55.9%, n=167), radiotherapy (6.0%, n=18) and chemotherapy (4.7%, n=14) – was described in 299 charts; the combination of these types of treatment was present in 19.4% (n=58) of the cases, and for 14.0% (n=42) of the patients no treatment was reported.

Regarding follow-up, 68.6% of the patients died (n=208) and 31.4% (n=95) were alive. Of the 208 patients who died, the survival mean was 25.75 months, with range of - 10.6 and 149.1 months (Graph 1).

For statistical purposes, the forms of treatment radiotherapy and chemotherapy were grouped because the number of cases was small; surgery was significant (p<0.001) for stages I and II, and for stage IV, it was combined therapies. Treatments involving radiotherapy and chemotherapy were not significant for any staging.

Tumor was removed surgically in 95.5% (n=43) of the patients in stages I and II. Radiotherapy or chemotherapy and combined treatments in 2.2% (n=1). For advanced stages of the disease III and IV, surgery was conducted in 40.1% (n=61) of the patients, radiotherapy, or chemotherapy in 15.1% (n=23) and the combination of two or more treatments in 34.2% (n=52) of the patients.

In stages III and IV, according to Pearson correlation, tongue was the leading site in comparison with others, but no statistical significance was found (p=0.073).
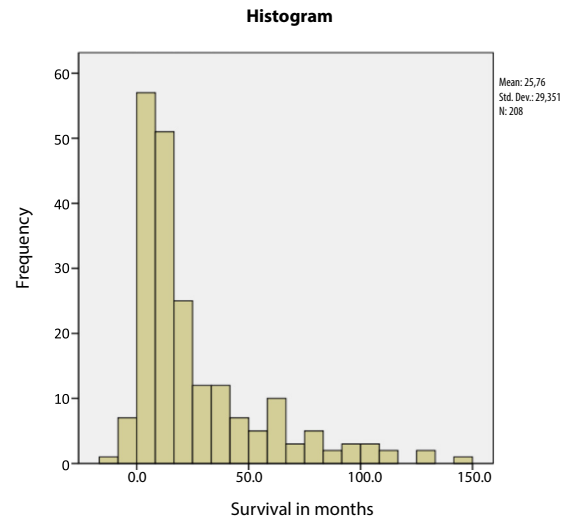
Graph 1. Frequency of global survival of patients who died because of cancer from 1993 to 2008. Passo Fundo, RS. Brasil

There was no statistical significance (p=0.197) between treatment and follow-up by Pearson correlation. The treatment utilized did not significantly influence the follow-up, similar to the site of the lesion and follow-up (p=0.159).

The relation among staging and follow-up through test t of Fisher revealed that most of the alive patients, 39.34% (n=24) was in stages I and II; the highest number of deaths occurred in stages III and IV, 84.56% (n=115), with statistical difference (p<0.001) among the groups. The relative risk of the patient diagnosed at advanced stages III and IV increased 2.5-fold the odds of dying than when diagnosed earlier in stages I and II.

Survival was calculated for the 136 patients dead with information about staging (Graph 2). In stages I and II, the survival was 46.25 months; in stages III and IV, of 17.83 months. The difference was significant (p=0.003) by the test of Mann-Whitney.

Of the 170 patients who were treated, survival after surgery was 33.19 months in average. For radiotherapy or chemotherapy, the average was 21.13 months and

Table 1. Distribution of cases per staging, sex, death, and survival from 1993 to 2008, Passo Fundo, RS. Brasil
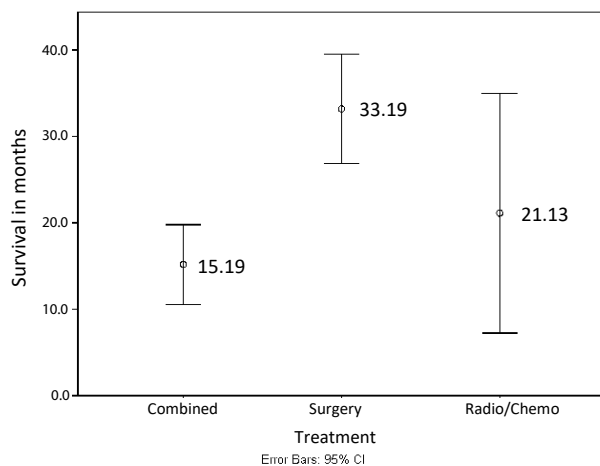
Staging	Male		Female		Total		Death		Survival In months
	n	%	n	%	n	%	n	%	
I	19	10.7%	6	31.6%	25	12.7%	9	36.0%	36.5
II	19	10.7%	1	5.3%	20	10.2%	12	60.0%	53.6
III	31	17.4%	5	26.3%	36	18.3%	24	66.7%	22.8
IV	109	61.2%	7	36.8%	116	58.9%	91	78.4%	16.6
TOTAL	178	100%	19	100%	197	100%	136	69.0%	
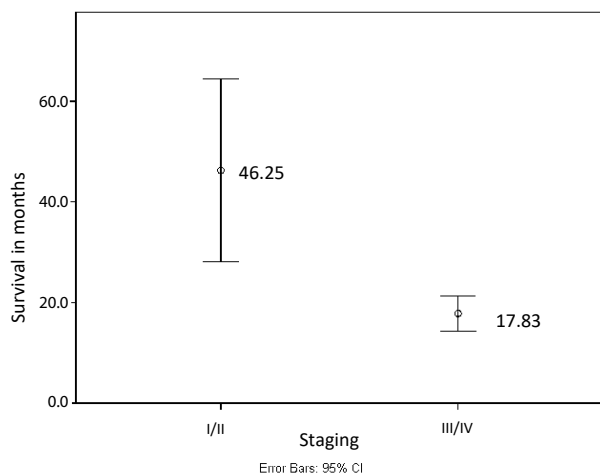
Graph 2. Interval and mean of survival of patients who died according to staging from 1993 to 2008. Passo Fundo, RS, Brasil

Graph 4. Interval and mean of survival of patients who died according to topographic location of the lesion at the diagnosis from 1993 to 2008. Passo Fundo, RS, Brasil

when these two or more were combined, survival mean was 15.19 months (Graph 3). There was no statistical significance in relation to the treatments and patients' life expectancy (p=0.185) per the Kruskal-Wallis test.
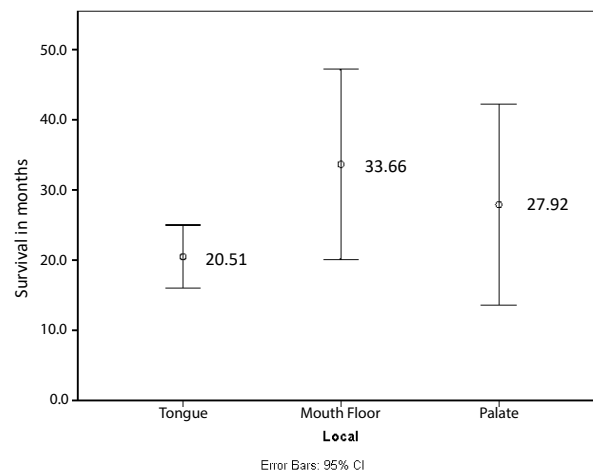
The survival mean in relation to the site affected by the tumor (Graph 4) was 20.51 months for tongue, 33.66 months for mouth floor and 27.92 months for palate. There was no statistic difference by the test of Kruskal-Wallis between survival and location of the tumor (p=0.201).

Graph 3. Interval and mean of survival of patients who died according to the treatment received, from 1993 to 2008. Passo Fundo, RS, Brasil

DISCUSSION

The most common profile of the patient affected by oral carcinoma in Passo Fundo and vicinities is similar to the literature: males, 60-70 years of age and leukoderma. Other studies identified similar data always with males more affected and mean age from 50 to less than 80 years old[1,3,8].

Alcohol and tobacco are the great risk factors for the development of oral squamous cell carcinoma. When associated, risk factors are more prevalent than separately[1,2,4,8,9]. The association in the present study was 84.7%. The State of Rio Grande do Sul accounts for 51% of the total production of tobacco in Brazil and the fifth highest prevalence of mouth cancer in the country. The World Health Organization affirms that one third of the world population smokes. According to the *Instituto Brasileiro de Geografia e Estatística* (IBGE)[10], nearly 25% of individuals older than 15 years report this habit in Brazil. Even with the anti-tobacco campaigns, there is still a great number of smokers[10].

The global mean survival of the 208 patients who died because of cancer was 25.76 months. The literature indicates that the mortality rate from 2011 to 2015 dropped 3.8% for males and 2.3% for females annually[11]. The survival is related to geographic, behavioral, and demographic factors[6]. Other studies affirm that the survival of patients affected by this pathology diminishes gradually and proportionally as the disease severity advances: as severer the disease, higher is the stage, lower is the survival[6,8,12].

The most affected anatomic site was the tongue similar to other studies with emphasis in the base of the tongue[1,8,13]. Although not statistically significant, patients affected by the tongue neoplasm had worse survival than in other sites with 20.5 months. Topographic location was not statistically relevant for survival in the present study, former studies have already concluded likewise[8,14].

Although oral cavity is an easily accessible and visualized anatomic site, many lesions go unnoticed, delaying the diagnosis and worsening the prognosis[11,12].

Detection of potentially malignant lesions by the professional as leukoplasia and erythroplasia contributes

significantly for early diagnosis of buccal cancer and should be reviewed together with the patient's medical background, whether deleterious habits exist, involvement of lymph nodes and analysis of radiographic or tomographic imaging[15,16]. Many times, lesions in initial stages have no painful symptomatologies which may not be noticed by the patient, causing frequently diagnosis delay, furthermore, there is no report in the literature of self-exam because the patient does not have a parameter about the normality of the mucosa[16].

The implementation of health programs to try to detect buccal cancer early through clinical triage has been discussed in the literature; results indicate its feasibility because of the identification of potentially malignant lesions in simple exams but there are still not enough evidences convincing the government to fund these procedures[16].

The late diagnosis was seen in most of the patients of this study since 77.2% of all the cases were in stages III and IV, showing the delay in the identification and beginning of the treatment of this pathology. Patients who were diagnosed in the initial stages of the disease lived more, the survival of those who died was much higher than in individuals diagnosed later. The data obtained revealed 2.5-fold more odds of a patient die than when the diagnosis was earlier. Tumor staging at the diagnosis is important for the patients' survival because the literature reveals that the lifetime of the patient diagnosed late is quite low when compared with the initial stage[1,6,9].

This study reveals that patients with late diagnosis lived in average 17.8 months, while those diagnosed in initial stage had 46.2 months of survival. Despite oral cavity is easily accessible for visual exam, it does not occur often, therefore it is essential that patients have annual oral cavity evaluation to diagnose small lesions and treat them early.

The treatment is closely related to the size of the tumor, staging and site, it is more complex as advanced is its invasion and complexity of the anatomic site involved[6,17]. The treatment of choice found in this study in most of the cases was surgery (55.9%) to remove the affected cells and more odds of eliminating the tumor. The survival of patients submitted to this treatment was 33.1 months, the greatest among the types of treatment. Patients with late diagnosis preferred combined therapies in concurrence with the literature[1,3,6,17].

The clinical stage of the disease is one of the leading factors impacting the development of metastases of buccal and oropharynx carcinoma and it also determines the choice of the combined treatment usually adopted in more advanced lesions[3,12].

Despite still immeasurable advances of the technology of cancer treatment in the last decades, patients' survival is contingent much more on the lesion staging than on the treatment utilized[1,3,6,12,17] also concluded in this study. The clinical and public health-related prognosis of this pathology starts from the staging at the diagnosis[3,4].

Because relevant clinical and epidemiological information were missing in the charts reviewed, it is important that health professionals report these data as precisely as possible as this knowledge will ensure more effective actions of prevention and fight of oral squamous cell carcinoma.

Due to the great quantity of patients without follow-up (203 of the 327 found in the database) it is possible that medical charts are not considered as seriously as they should be, because of potential lack of time, of staff, or even disinterest directly impacting the results of this and of other studies depending on these information. Another topic to be discussed is whether the investment in these treatments is enough to fight this neoplasm, it is mandatory to have more information in the database to improve the accuracy of this evaluation.

The State of Rio Grande do Sul has the fifth highest index of human development in Brazil, 0.832 representing the level of health, education, and income of the population. The Gini coefficient shows the concentration of income of the population, in average (0.500)[10], suggestive of good quality of life, which possibly should mean more information and access to health services, diagnosis and treatment.

A historical analysis of cancer status in several countries has demonstrated that actions to control the disease were mostly curative at the expense of preventive and early diagnosis[4-7]. Definitively, curative actions are not good strategies to fight this pathology, considering that the costs of patients' treatment and who died are much higher to the government than prevention costs.

Developed, high education level countries have lower buccal cancer rates in older individuals as found in the present study, however, for younger patients it is higher with emphasis in leukoderma women[13].

The limitation of the study was that it was based in the population of one hospital alone, therefore it was not possible to expand to the population of the State, and much less to the whole country.

CONCLUSION

HSVP presented profile of male patients diagnosed predominantly with stages III and IV oral squamous cell carcinoma in the sixth decade of life, leukoderma, low level of education, tobacco and alcohol use associated; this condition increased 2.5-fold the odds of evolving to death. Surgery was the treatment of choice in most of the cases,

granting higher survival of the patient, although it was not found statistical significance in relation to the other types of treatment. These data contribute to reinforce the proposal of encouragement to increase the investments in prevention measures, regardless of public expenditures required for curative therapies.

CONTRIBUTIONS

Luana Soares Kuze and Gisele Rovani contributed substantially for the study conception and design, collection, analysis and/or interpretation of the data. Adriano Pasqualotti, Ferdinando de Conto, Mateus Ericson Flores, and Thales Henrique Jinczwiski Ponciano contributed substantially for the wording and critical review. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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