Time elapsed between the first symptoms, diagnosis and treatment of oral cancer patients in Belo Horizonte, Brazil

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ABSTRACT

Objective:

One of the most important objectives of a public health service is early diagnosis of disease, which provides a better prognosis and reduction in treatment cost. We investigated the delay for diagnosis and treatment of oral cancer in a public hospital.

Material and methods:

One hundred eighty records of patients who attended for their first consultation in the department of head and neck surgery in a public hospital from Belo Horizonte–Brazil, between the period from 1 January 1999 to 31 December 2001 were analysed. The following variables were analyzed: gender, age, evolution time (ET), time elapsed from referral to hospital and first appointment (RT), time elapsed from first appointment and treatment (TT), total time elapsed from first noticing the lesion and starting treatment (TTE), sites and staging.

Results:

Results for males and females were, respectively: mean age = 57.9 and 60.8 years; ET= 169.4 and 215.4 days; RT = 27.9 and 40.6 days; TT = 40.9 and 44.9days; TTE = 207.9 and 263.8 days. No correlation was observed between age and TTE for either gender. Women presented the highest mean values for ET and TTE ($p<0.01$).

Conclusion:

It was concluded that public health policy should be developed to address the excessively long time lapsed between diagnosis and treatment as well as improve public health education programs to promote early oral cancer identification.

Key words: *Oral cancer; delay, diagnosis.*

INTRODUCTION

According to the Brazilian National Institute of Cancer (INCA) oral cancer is the 6th most prevalent malignant lesion for men and the 7th for women in Brazil, and estimates for the year 2006, reveal an incidence of 13 460 new cases with 3,415 deaths (1).

One of the most important objectives of a public health service is early diagnosis of disease, which provides a better prognosis and reduction in treatment cost. Among the determinant factors in the prognosis of tumours, the evolution time is one of the main determinants in patient survival, which plays a vital role in determining the stage of the disease at the time of diagnosis. However the majority of tumours are diagnosed in the advanced stages (2- 8).

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Studies on survival of patients with oral cancer in Rio de Janeiro have found a strong correlation between the increase of mortality and advanced clinical stage and highlight the importance of reducing the time between the appearance of symptoms and diagnosis, as one of the most important factors to improve prognosis (9).

In Brazil the situation is alarming, with little evidence of the political will to reverse the situation. Data from INCA reported an incidence amongst men of 15.01 per 100 000 inhabitants for the year 2006. As for various region of Brazil there is a tendency for oral cancer incidence rates to increase for both sexes (1). A study about oral cancer mortality in the state of São Paulo between 1980 and 1998 showed that its incidence remained stationary at high levels during that period (10).

Although the expression oral cancer is designed to include all malignant neoplasms that affect the oral cavity, oral squamous cell carcinoma (OSCC) accounts for about 90% of diagnosed tumours affecting the mouth (9, 11).

The objective of this study focussed on determining the time elapsed for treatment for patients with OSCC, in a reference hospital from Belo Horizonte, Brazil, which exclusively attends to patients in the public national health system.

PATIENTS AND METHODS

One hundred eighty records of patients who attended for their first consultation in the department of head and neck surgery in a public hospital from Belo Horizonte–Brazil, between the period from 1 January 1999 to 31 December 2001 were analysed. Only OSCC cases with histological confirmation were included in the study. Information was collected on: gender; age; localisation and staging of tumour; evolution time reported by patients since the first symptoms until the first consultation in hospital (ET); the time between referral by a health centre or health professional to hospital and undertaking the first consultation in the department of head and neck surgery (RT); time interval between the first consultation at hospital and the start of treatment, surgery and/or radiotherapy (TT); total time (TTE) which corresponds to the time since the initial symptoms until the start of treatment, and which corresponds to the sum of the times ET+TT. The evolution time was calculated in days, based on the history reported by the patient and registered in his/her medical chart. Other time periods were based on the dates of documents and the patient's chart.

The location of the primary lesion was based on the codes of topography of the oral cavity proposed by the International Classification of Disease- Oncology – 10th revision (ICD-10) as follows: ICD C02 (malignant neoplasm of the tongue), ICD C03 (malignant neoplasm of the gingivae), ICD C04 (malignant neoplasm of the floor of the mouth), ICD C05.0 (malignant neoplasm of the hard palate), ICD C06.0 (malignant neoplasm of the oral mucosa), ICD C06.2 (malignant neoplasm of the retromolar area). Cases of lip cancer were excluded due to its biological characteristics which differentiate them from other oral tumours in relation to prognosis. Tumours located in the hard palate, gingivae, oral mucosa were grouped as "Other sites" due to the low prevalence of each one. Due to the difficulty to identify the origin of the primary lesion, synchronous tumours, metachronous tumours and those that involved more than one site were grouped as "In more than one site". The tumours were classified in four stages according to the TNM Classification. Tumours of stages I and II were considered as early diagnosis, while stages III and IV were classified as late diagnosis (12). Date were analysed using Student's t test and Pearson's correlation. The study was approved by Ethics Committee from Federal Universty of Minas Gerais.

RESULTS

Of the 180 records, in 9 male cases there was no registration of the evolution time, in 20 cases no referral letter was found and 10 patients did not return for treatment. Among the women, one did not return for treatment and, in one case, the referral to hospital could not be identified. These records were not totally discarded since the available data were incorporated. As a result, the calculation of times was made, for male patients, based on the following number of cases: ET= 143, RT= 132, TT and TTE= 143. As for females patients calculations were made on the following sample: ET= 28, RT= 27, TT and TTE= 28.

Of the 180 records 152 (84.4%) were men and 28 (15.6%) women, presenting a male/female ratio of 5.4/1. The mean age of the sample was 58.4 (±11,4) years, being 57.9 (± 11.2) years for men and 60.8 (±14.0) years for women.

As for the anatomical distribution the most prevalent sites were tongue (32.2%), the floor of the mouth (23.3%) and the retromolar region (15.0%).

Analysis of the time periods shows a statistically significant gender difference with reference to the evolution time (ET) of the tumour and the total time (TTE), being longer among women. When ET was stratified for age group a difference was noted only among patients above 70 years of age ($p < 0.05$) (Table 1).

The distribution by age group shows a larger number of patients aged 51 and 70 years and few cases below the age of 50 years (24,5%). No statistically significant correlation was found between age and time of evolution of tumours (Pearson´s correlation).

An analysis of evolution time of tumours in relation to anatomical sites did not show a difference between the three most prevalent sites. Tumours situated in "Other sites" and "In more than one site" showed a statistically significant longer evolution time ($p<0.01$).

For all sites it was observed that tumour diagnosis occurred during late stages (stages III and IV) (Table 2). Moreover, evolution time as reported by patients did not show statistically significant diference, when clinical stages were taken into account (Table 2).

DISCUSSION

In Brazil the public health service referral to a head and neck surgeon involves two steps. Firstly the primary health care physician makes a referral to a hospital and secondly the patient has to make an appointment with an specialist.

Table 1. Distribution of average evolution time (ET) in days, by age group.

Gender	30 to 49 years Means (±sd)	50 to 59 years Means (±sd)	60 to 69 years Means (±sd)	70+ years Means (±sd)	Total Means (±sd)
Male	147.0 (±100.2)	164.0 (±89.9)	165.2 (±108.0)	157.0 (±99.1)*	169.4 (±92.0)**
Female	198.0 (±58.5)	190.2 (±100.3)	214.3 (±101.6)	236.2 (±79.3)*	215.4 (±80.4)**
Total	152.8 (±98.4)	167.6 (±90.9)	172.0 (±107.3)	177.1 (±99.6)	174.2 (±90.7)

** p< 0.01 * p < 0.05

Table 2. Distribution of average evolution time (ET) in days, according the stage of the tumours.

Stage at time of diagnosis	N (%)	Evolution time (ET)	Standart desviation (SD)	P value
Early stage	38 (21.2)	151.8	85.9	P= 0.24
Late stage	141 (78.8)	171.1	99.1	

Obs: 1 case where staging was not registered

It has been observed that access to treatment in a public hospital is often delayed and it cannot be attributed only to the patient. The delay in the diagnosis of oral cancer in others studies has been divided in "patient delay" and "professional delay" (5, 13, 14). In the present study patient delay was measured through evolution time (ET) and professional delay corresponded to both referral time (RT) and time elapsed until treatment (TT), which took 73.1 days.

It is of great concern the observed management of oral cancer patients treated by the public health service. A mean period of 217.3 days elapsed between the first symptoms until the beginning of treatment, indicating a shortcoming in the Brazilian health system regarding early diagnosis. More of a concern is the fact that the public sector is unable to identify the disease in its initial phase (10).

Studies have been undertaken in different regions of Brazil using retrospective data covering different decades and it has been observe that the time elapsed between the diagnosis and treatment of oral cancer, as well as the stages in which the tumours are diagnosed, are similar to the present study (7, 8). In spite of how long ago these studies were carried out, no difference whatsoever was observed in the evolution time (about 6 months) and, therefore late stage diagnosis (60 to 70%). Even though our study covers a more recent period (1999 to 2001) little progress has been observed since our results confirm those of previous decades, since tumours were late diagnosed (78.8% in stages III and IV) and the evolution time was long (174.2 days). It must be remembered that the recording of clinical stages was undertaken at the first hospital appointment and hence it was influenced by the time taken by the patient to make an appointment at the hospital. Our results clearly indicate that a country with one of the highest oral cancer incidence rates in the world (15) lacks of an effective health programme that really addresses prevention and early diagnosis of oral.

Rubright et al. (3) concluded that patients with tumours in the floor of the mouth wait longer before seeking treatment and those with tongue tumour seek treatment earlier. In our study, however, the tumours of the tongue, floor of the mouth and retromolar area did not show differences in relation to the evolution time. When evolution time (ET) is analysed in relation to anatomical sites, it was observed that the tumours that evolved in more than one site showed the greatest evolution time. This observation is compatible with the fact that these tumours also presented with approximately 94.0% at a late stage diagnosis (stages III and IV).

Women reported longer evolution time than men which is in agreement with other studies (13). Taking into account RT and TT, no gender differences were detected.

When the sample was stratified, the longer evolution time reported by women significant only in the age group above 70 years of age. This may be due to the small number of women in our sample. Since this study was undertaken based on medical charts it was not possible to evaluate the reasons for such delay in seeking assistance, which may be better clarified by a qualitative study.

Although the mean age for the establishment of oral cancer among women has been reported as greater than amongst men (7, 11, 16, 17), this difference was not statistically significant in the present study. Nevertheless, when age group distribution was analysed it was observed higher numbers of men below the age of 50 years, and a higher percentage of women above 70 years of age. Between the ages of 50 and 70 the gender distribution is similar. The fact that 24.5% of our sample was below 50 years of age is in agreement with recent studies which clearly indicate that oral cancer is affecting younger people (18). No statistically significant correlation was observed between age and the time spent before first examination. These data differ from other studies which have indicated that elder patients delay seeking (19). In Basque Country (Spain), early squamous cell carcinoma of the tongue and floor of the mouth affects mainly male smokers and drinkers of alcohol under the age of 60 years (20).

When our results are compared to data from countries such as the United States, Holland, Denmark and Canada, which show shorter times for the diagnosis and treatment of oral cancer, it clearly emphasises the efforts which must be made in order to improve early diagnosis and treatment of oral cancer in Brazil (4, 13, 21). The mean time for diagnosis and the start of treatment of oral squamous cell carcinoma in Brazil is similar to other developing countries with a high incidence of oral cancer, such as India, Thailand and Malaysia (5, 14, 22).

On the other hand, despite the long evolution time observed in our investigation, the delay has not been associated with the tumour staging (Table 2). This result suggests the importance of the frequent check-ups to reduce the diagnosis of the OSCC in late stage. This finding has been confirmed by other study, which also concluded that no significant association between delay and T or N categories were observed (6).

It must be remembered that the population at risk for oral cancer come from poorest social class (9, 17, 23) and hence are seen at the public health service in Brazil. At present Brazilian dental services and oral health programmes are limited to oral hygiene instructions and caries prevention. Some studies emphasise the lack of involvement of dentists in the diagnosis of oral cancer, even though it can be easily carried out during an oral examination (24). And it must be also noted that the population in greater need has limited access to dental care in Brazil.

The alcohol and tobacco consumption are the mains risk factors of oral cancer (16, 17, 25). Widely spread educational campaigns against determinant factors of oral cancer, such as high consumption of tobacco, length of tobacco exposure, associated the early establishment of such a habit, are urgent in order to reduce oral cancer incidence rates. Moreover programmes should be developed emphasising the early diagnosis due to its impact on patient's survival rate, quality of life and treatment costs. Therefore urgent changes in public health programmes must be undertaken aiming to target the population using more efficient means, which in turn should take into account the low level of information concerning oral cancer and its main risk factors.

Strategies to overcome the present situation should include not only regular dental attendance but also oral health programmes for the prevention of oral cancer. It must also involve a multidisciplinary approach in the early diagnosis of oral cancer with the participation of other health professionals.

REFERENCES

1. Ministério da Saúde. Estimativa da incidência e mortalidade por câncer no Brasil [homepage on the Internet]. Brasil; 2006. [updated 2006 Feb 23] Available from: http://www.inca.gov.br/estimativa/2006.

2. Kowalski LP, Franco EL, Torloni H, Fava AS, de Andrade Sobrinho J, Ramos G et al. Lateness of diagnosis of oral and oropharyngeal carcinoma: factors related to the tumour, the patient and health professionals. Eur J Cancer B Oral Oncol. 1994 May; 30B(3):167-73.

3. Rubright WC, Hoffman HT, Lynch CF, Kohout FJ, Robinson RA, Graham S et al. Risk factors for advanced-stage oral cavity cancer. Arch Otolaryngol Head Neck Surg. 1996 Jun; 122(6):621-6.

4. Allison P, Franco E, Feine J. Predictors of professional diagnostic delays for upper aerodigestive tract carcinoma. Oral Oncol. 1998 Mar; 34(2):127-32.

5. Kerdpon D, Sriplung H. Factors related to delay in diagnosis of oral squamous cell carcinoma in southern Thailand. Oral Oncol. 2001 Feb; 37(2):127-31.

6. Onizawa K, Nishihara K, Yanagata K, Yusa H, Yamagawa T, Yoshida H. Factors associated with diagnostic delay of oral squamous cell carcinoma. Oral Oncol. 2003 Dec; 39(8): 781-8.

7. Gervásio OL, Dutra RA, Tartaglia SM, Vasconcellos WA, Barbosa AA, Aguiar MC. Oral squamous cell carcinoma: a retrospective study of 740 cases in a Brazilian population. Braz Dent J. 2001 Jan;12(1):57-61.

8. Carvalho AL, Pintos J, Schlecht NF, Oliveira BV, Fava AS, Curado MP et al. Predictive factors for diagnosis of advanced-stage squamous cell carcinoma of the head and neck. Arch Otolaryngol Head Neck Surg. 2002 Mar; 128(3):313-8.

9. Leite IC, Koifman S. Survival analysis in a sample of oral cancer patients in a reference hospital in Rio de Janeiro, Brazil. Oral Oncol. 1998 Sep; 34(5):347-52.

10. Antunes JL, Biazevic MG, de Araújo ME, Tomita NE, Chinellato LE, Narvai PC. Trends and spatial distribution of oral cancer mortality in São Paulo, Brazil, 1980-998. Oral Oncol. 2001 Jun; 37(4):345-50.

11. Canto MT, Devessa SS. Oral cavity and pharynx câncer incidence rates in the United States, 1975-1988. Oral Oncol. 2002 Sep; 38(6):610-7.

12. de Boer MF, Sanderson RJ, Damhuis RA, Meeuwis CA, Knegt PP. The effects of alcohol and smoking upon the age, anatomic sites and stage in the development of cancer of the oral cavity and oropharynx in females in the south west Netherlands. Eur Arch Otorhinolaryngol. 1997 Apr; 254(4):177-9.

13. Wildt J, Bundgaard T, Bentzen SM. Delay in the diagnosis of oral squamous cell carcinoma. Clin Otolaryngol Allied Sci. 1995 Feb; 20(1):21-5.

14. Kumar S, Heller RF, Pandey U, Tewari V, Bala N, Oanh KT. Delay in presentation of oral cancer: a multifactor analytical study. Natl Med J India. 2001 Jan-Feb; 14(1):13-7.

15. Hamada GS, Bos AJ, Kasuga H, Hirayama T. Comparative epidemiology of oral cancer in Brazil and Índia. Tokai J Exp Clin Med. 1991 Mar; 16(1):63-72.

16. Moreno-López LA, Esparza-Gomez GC, González-Navarro A, Cerero-Lapiedra R, González-Herández MJ, Domínguez-Rojas V. Risk of oral cancer associated with tobacco smoking, alcohol consumption and oral hygiene: a case-control study in Madrid, Spain. Oral Oncol. 2000 Mar; 36(2):170-4.

17. Franco EL, Kowalski LP, Oliveira BV, Curado MP, Pereira RN, Silva ME, et al. Risk factors of oral cancer in Brazil: a case-control study. Int J Cancer. 1989 Jun; 43(6):992-1000.

18. Mackenzie J, Ah-See K, Thakker N, Sloan P, Maran AG, Birch J et al. Increasing incidence of oral cancer amongst young persons: what is the aetiology? Oral Oncol. 2000 Jul; 36(4):387-9.

19. Sanderson RJ, de Boer MF, Damhuis RA, Meeuwis CA, Knegt PP. The influence of alcohol and smoking on the incidence of oral and oropharyngeal cancer in women. Clin Otolaryngol Allied Scie.1997 Oct; 22(5):444-8.
20. Martinez-Conde R, Aguirre JM, Burgos JJ, Rivera JM. Clinicopathological factors in early squamous cell carcinoma of tongue and floor of the mouth in Biscay (the Basque Country, Spain). Med Oral. 2001 Mar-Apr; 6(2): 87-94.
21. Guggenheimer J, Verbin RS, Johnson JT, Horkowitz CA, Myers EN. Factors delaying the diagnosis of oral and oropharyngeal carcinomas. Cancer. 1989 Aug; 64(4): 932-5.
22. Khoo SP, Shanmuhasuntharam P, Mahadzir WM, Tay KK, Latif A, Nair S. Factors involved in the diagnosis of oral squamous cell carcinoma in Malaysia. Asia Pac J Public Health. 1998; 10(1):46-51.
23. Petit E, O´Shea R, Greene G Jr. Dentist and oral cancer: the experience and attitudes of the practiones. N Y States. Dent 1976 Mar; 42(3):161-7.
24. Bruun JP. Time lapse by diagnosis of oral cancer. Oral Surg Oral Med Oral Pathol Oral Radiol Oral Endod. 1976 Aug; 42(2):139-49.
25. Figuero Ruiz E, Carretero Pelaez MA, Cerero Lapiedra R, Esparza Gomez G, Moreno Lopez LA. Effects of the consumption of alcohol in the oral cavity: relationship with oral câncer. Med Oral. 2004 Jan-Feb; 9(1): 14-23.