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Incidence of Malignant Oral Neoplasms in Brazilian Regions
Incidência de neoplasias malignas orais nas regiões brasileiras
Incidencia de neoplasias malignas orales en las regiones brasileras

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Oral cancer is among the 10 most frequent types of malignant tumours in Brazil and is considered a public health problem. This research aimed to analyse the incidence of malignant neoplasms of the lip and oral cavity in the Brazilian regions, according to gender in the period from 2006 to 2013. A comparative statistical procedure was used, through the indirect documentation technique. Data were obtained from the DATASUS morbidity indexes and analysed using descriptive statistics. The Southeast and South regions showed higher values of incidence of this type of cancer, and the North region presented the lowest incidence rates. The incidence was higher among males in the years considered. The incidence rate varies among the regions of the country, as well as between the genders, and preventive measures should be taken to combat the increase of oral cancer.
Descriptors: Mouth neoplasms; Public Health; Incidence.

O câncer bucal se encontra entre os 10 tipos mais frequentes de tumor maligno no Brasil e é considerado um problema de saúde pública. Esta pesquisa objetivou analisar a taxa de incidência das neoplasias malignas de lábio e cavidade oral nas regiões brasileiras, segundo o sexo, no período 2006 a 2013. Utilizou-se procedimento comparativo e estatístico, pela técnica de documentação indireta. Os dados foram obtidos através dos indicadores de morbidade do DATASUS e analisados pela estatística descritiva. As regiões Sudeste e Sul apresentaram maiores valores de incidência desse tipo de neoplasia, sendo o Norte a região com os menores valores encontrados. O sexo masculino demonstrou ter mais incidência nos anos considerados. A taxa de incidência varia entre as regiões do país, assim como entre os sexos. Medidas preventivas devem ser tomadas para combater o aumento do câncer de boca.
Descritores: Neoplasias bucais; Saúde Pública; Incidência.

El cáncer bucal se encuentra entre los 10 tipos más frecuentes de tumor maligno en Brasil y es considerado un problema de salud pública. Esta investigación tuvo como objetivo analizar la tasa de incidencia de las neoplasias malignas del labio y cavidad oral, en las regiones brasileras, según sexo, en el período de 2006 a 2013. Se utilizó el procedimiento comparativo y estadístico, por la técnica de documentación indirecta. Los datos se obtuvieron a través de los indicadores de morbilidad del DATASUS y se analizaron usando estadística descriptiva. Las regiones Sureste y Sur mostraron valores más altos de incidencia de este tipo de cáncer, siendo el Norte la región con los valores más bajos. El sexo masculino demostró ser el más incidente en los años considerados. La tasa de incidencia varía entre las regiones del país, así como en los sexos. Medidas preventivas deben ser tomadas para combatir el aumento del cáncer de boca.
Descriptores: Neoplasias de la boca; Salud Pública; Incidencia.

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INTRODUCTION

Oral cancer is among the 10 most common malignant tumors in Brazil. It is often associated to the use of tobacco, alcohol, or the combination of both. This type of cancer can affect the lips and the interior of the oral cavity[1]. The squamous cell carcinoma (SCC) is the most common, corresponding to 90 to 95% of cases of cancer in the mouth[2]. The disease can be more aggressive among smokers and alcoholics[3]. The most affected anatomic locations are the tongue, the floor of the mouth and the inferior lip[4].

Regarding gender, oral tumors are more likely to affect males, which can be due to the fact that females are less exposed to smoking and alcoholism. Most cases affect individuals between 50 and 70 years of age[5].

The quality of life o patients with this kind of neoplasm generally diminishes when they receive the diagnosis, especially those who present a more advanced tumor, and whose tumor is located in the posterior region of the oral cavity[6]. Educative action influence in the self-diagnosis and in the self-care of people who are looking to prevent or cure the oral diseases in their initial stages[7].

In this context, this study aims at analyzing the incidence rate of oral malignant neoplasms in the Brazilian regions, according to the gender of the participants, in the years from 2006 to 2013.

METHOD

An inductive approach was used, together with a comparative and statistical procedure, through the technique of indirect documentation. An analysis was conducted to find what was the incidence rates of lip and oral cavity malignant neoplasms for every 100,000 people, according to gender, in the Brazilian regions.

The period of the study was from 2006 to 2013. Data were obtained through an access to the website of the Informatics Department of the Unified Health System (DATASUS - Brazil), which are offered every two year by the National Institute of Cancer (INCA) from the Ministry of Health of Brazil, and were analyzed through descriptive statistics, through the software Microsoft Excel 2010.

RESULTS

For every 100,000 inhabitants, Brazilian regions presented an average of 9.09 lip and oral cavity malignant neoplasm incidences for males - with a variation from 3.11 to 15.33, standard deviation (SD) of 4.61. For females, the average was of 3.31, varying from 1.53 to 5.79, and SD of 1.09, in the period from 2006 to 2013 (Table 1).

Table 1. Measures of central tendency and dispersion of the rates of lip and oral cavity malignant neoplasms for every 100,000 Brazilian inhabitants, according to their gender, from Brazil, 2006 to 2013.

Gender	Average	Standard Deviation	Median	Minimum	Maximum
Male	9.09	4.61	7.78	3.11	15.33
Female	3.31	1.09	3.27	1.53	5.79

Source: DATASUS

Males presented a higher incidence of oral neoplasms than females in all Brazilian regions.

The Southeast appears to be the region with the highest incidence of mouth cancer, followed by the South. The lowest incidence, for both genders, was found in the North (Table 2).

Table 21: Incidence rates of lip and oral cavity malignant neoplasms for every 100,000 inhabitants, according to gender, Brazil (2006-2013).

Period	2006-2007		2008-2009		2010-2011		2012-2013	
Regions	M	F	M	F	M	F	M	F
North	3.12	1.53	3.23	1.61	3.11	1.6	3.24	1.86
Northeast	5.48	2.95	5.93	3.62	6.56	3.81	6.15	3.25
Southeast	15.33	4.34	15.21	4.64	14.2	4.15	14.61	5.79
South	14.53	4.05	14.38	3.66	13.79	3.94	11.57	3.0
Midwest	7.27	2.73	7.74	3.27	7.83	3.28	8.58	3.17

Source: DATASUS

DISCUSSION

In Brazil, the National Institute of Cancer estimated that, in 2016, there would be an incidence of 15,490 new cases of mouth cancer, of which 11,140 would affect males and 4,350, females. These numbers correspond to an estimated risk of 11.27 new cases for every 100 thousand men and 4.21 for every 100 thousand women[1].

The numbers this study found are not far from that estimate, since the average for men was 9.09, and the average for women were 3.31, for each 100,000 inhabitants. The fact that there were 2.74 cases of oral neoplasms in males for each case in females is a similarity between this study and that of Castilho *et al*. (2012)[8], which found that the same number was 2.42 times higher.

The results of this research indicate a discrepancy in the numbers for each sex, since the incidence in men is higher in every Brazilian region in the selected time period; that corroborates the literature which states that oral cancer is predominant among males[5, 8-11].

Alcoholism, smoking, and infections caused by the Human Papiloma Virus (HPV) - especially those caused by the 16 and 18 types - are the main risk factors for this type of tumors. Smoking and alcoholism are considered to represent 65% risk for the development of oral cavity cancer. To this effect, these two factors are synergistic, and when together, offer an even higher risk.

The exposition to ultraviolet solar radiation is also an important risk factor for lip cancer. In addition to those, some genetic changes are also observed in the development of these types of cancer[1].

Cancer will continue increasing in developing countries and will grow even higher in developed ones, if preventive measures are not widely applied[12]. Despite the knowledge about risk factors and prevention campaigns, the oral cavity cancer is the fourth most frequent in the Southeast Region of Brazil. In the Northeast and Midwest, it is the fifth most common. In the South, it is the sixth, and in the North, the seventh most common. For females, this type of neoplasm is the ninth more common in the Northeast. In the regions South and Southeast, oral cancer is the tenth and fifteenth most common, respectively. Both in the North and the Midwest, it is the twelfth most common type of cancer[1].

The distribution of new cases of oral neoplasms in Brazil differs according to the region, being higher the numbers found in the Southeast. According to Casati *et al*. (2012) [10], this is due to the fact that, among other factors, this region contains about 80.3 million inhabitants, 44% of the Brazilian population. During 1980s and 1990s, the South and Southeast regions witnessed a fast social

development, with a decrease in child mortality and increase in the life expectation and life quality, which also reflects in the incidence of malignant neoplasms[13].

There has been a relevant relation between socioeconomic determinants and the emergence of new cases of mouth cancer[14], being that the most developed regions present a higher life expectation, and a consequent increase in the number of elders, who are the most frequently affected by cancer[15].

The North and Northeast regions have presented the lowest oral neoplasm incidence. In the agricultural areas, especially in the Brazilian Northeast, where the rural workers are exposed to the sun, the risk of development of lower lip cancer is higher, especially when associated to tobacco[16]. These regions might have an under-notification problem, and thus offer results with lower incidence of oral malignant neoplasms.

This study has demonstrated that there are disparities in the incidence of malignant oral neoplasms among Brazilian regions, as well as between genders. It is necessary to produce more scientific evidences, which support actions that show the true impact of mouth cancer on epidemiological indexes[17].

CONCLUSION

The incidence of malignant oral neoplasms differs among Brazilian regions, being higher in the Southeast and in the South. Males are more frequently affected by this type of malignant neoplasm.

The exposure to carcinogenic risk factors, as well as the social, cultural and economical development of the different regions of the country influence in the appearance of such differences.

Preventive actions, precocious diagnoses and a correct treatment for mouth cancer are measures that must be taken to improve the indicators of this major public health issue.

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CONTRIBUTIONS
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