# Investigação Científica

# Oral lesions detected during a population screening for prevention and early diagnosis of oral cancer and potentially malignant disorders

Lesões orais detectadas durante uma triagem populacional para prevenção e diagnóstico precoce de câncer de boca e lesões potencialmente malignizaveis

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### **Abstract**

Objective: In this paper, we describe the results of an oral cancer prevention campaign for early detecting and diagnosing oral cancer and potentially malignant disorder. Subjects and method: The population screening was performed in one day in which population was recruited by local mass media communication means. Patients with suspicious lesions were referred for final diagnosis with a specialist in oral medicine and pathology. Results: Of 1.282 patients screened, 104 were referred for specialized care and 94 attended for final diagnosis. Of those, only one (1.06%) patient was diagnosed with oral squamous cell carcinoma and 25 (26.5%) with oral potentially malignant disorders, while the diagnosis rates for benign conditions and normality variations were, respectively, 78.7% and 32.9%. Conclusion: These results suggest low awareness regarding oral cancer within this population, flaws in the knowledge regarding oral cancer by dentists, and the need for improvements in the access to the at-risk population for oral cancer.

Keywords: Mouth Neoplasms. Health Promotion. Primary Prevention.

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## Introduction

Oral squamous cell carcinoma (OSCC) is among the most common human cancers, and due to its low chances of cure and 5-years survival, it represents an important public health problem worldwide<sup>1</sup>. Delayed diagnosis of OSCC is determinant for worse survival. Therefore, early diagnosing this disease is mandatory to improve patients' survival and quality of life<sup>1</sup>. Nevertheless, most cases are still diagnosed in advanced stages, including in Latin America<sup>1</sup>.

Early diagnosis of OSCC is difficult mostly due to patients' own lack of awareness regarding oral lesions and to health care professionals lacks in knowledge regarding the disease<sup>2-5</sup>. Furthermore, diagnosing and properly approaching oral potentially malignant disorders (OPMD) is of great importance for preventing OSCC in at-risk populations.

In order to reduce the mortality and morbidity of OSCC, several nationally developed oral cancer prevention campaigns are performed worldwide<sup>3</sup>. These campaigns generally consist of providing oral examinations and aids for the patients regarding risk factors, oral selfexamination, and signs and symptoms of OSCC and OPMD6. Although after many years of oral cancer prevention work, several flaws are still faced, since the rates of OSCC diagnosed in late stages are still high3. Thus, the need for continued research within these issues is a unanimous conclusion of published oral cancer prevention studies3. In this report, we describe the oral lesions diagnosed during an oral cancer prevention campaign performed in the city of Fernandópolis, Brazil, in 2016.

# **Subjects and method**

This cross-sectional study aimed to evaluate oral diseases diagnosed during an oral cancer prevention campaign (OCPC) on May 2016 in the city of Fernandópolis, São Paulo, Brazil. Recruitment of patients was carried out by mass communication (radio, newspaper, television, and internet) and by alternative means (folders and banners). In total, 19 primary healthcare centers

(PHCs) of the Fernandópolis city participated in the study.

## **Ethical approval**

This study was performed after approval by the ethics committee for research of the Camilo Castelo Branco University (UNICASTELO) through the protocol no. 43602515.5.0000.5494.

## **Population screening**

The initial examination consisted of an oral examination performed by dental surgeons of the primary care Public Health Network (PHN) of the Fernandópolis city, Brazil. As recommended by Sohn<sup>7</sup> et al., all primary care providers (PCPs) and centers were involved in the campaign following three principles: Up-to-date education regarding oral cancer was provided for examiners prior to the campaign; The referral system was set up, and the Dental Specialties Center (DSC) of the PHN prepared to receive referred patients after screening; PCPs received proper reimbursement in the form of a day off. This approach aimed to detect oral lesions at risk for OSCC or OPMDs and to provide aids for the population predisposed to OSCC regarding the importance of selfexamination for early diagnosis of malignant lesions.

# **Final diagnosis**

Patients who had oral lesions detected during the screening were referred to the DSC for reassessment by a specialist in oral diagnosis and oral pathology. This professional performed the diagnosis process applicable to each case. A biopsy was performed in cases of clinical diagnosis of OPMD and OSCC.

## **Analysis**

The data was transferred to an electronic tabulation program (Excel 2016®) and variables of interest were analyzed using the Epi Info TM version 7.1.5.0 (Centers for Disease Control and Prevention). Critical descriptive analysis is presented.

For the description and to attend the aim of the study and the campaign, lesions were classified as malignant, oral potentially malignant disorders (OPMDs), benign conditions with no malignant risk, and normality variations. OPMDs were oral leukoplakia (OL), oral erythroplakia (OE), oral lichen planus (OLP), and actinic cheilitis (AC). Benign conditions included benign mesenchymal neoplasms, non-neoplastic proliferative lesions, salivary glands benign lesions, infections, and orofacial pain.

### Results

A total of 1.282 patients were examined by dental surgeons from the municipal public health network. Of those, 102 (7.95%) were referred to the DSC for reassessment and appropriate approach. Despite the orientation and awareness about the importance of early diagnosis of oral cancer, only 94 (%) patients attended for reevaluation. (Table 1). Among the 94 reassessed patients, only 1 (1.06%) were diagnosed with oral cancer, 74 (78.72%) lesions were diagnosed as benign lesions, 31 (32.97%) variations in oral normality and 25 (26.59%) cases were diagnosed as OPML (Table 1).

Table 1 – Patients examined and diagnosed in the oral cancer prevention campaign, Fernandópolis, SP, Brazil, 2016

| Examined patients        | n=1.282 | %     |
|--------------------------|---------|-------|
| Referred to reassessment | 102     | 7.95  |
| Attended reassessment    | 94      | 7.33  |
| Diagnosis                | n=94    | %     |
| OSCC*                    | 01      | 1.06  |
| Benign lesions           | 74      | 78.72 |
| OPMD+                    | 25      | 26.42 |
| Normality variations     | 31      | 32.97 |

<sup>\*</sup>Oral squamous cell carcinoma; \*Oral potentially malignant disorders.

Considering the total of 1.282 patients examined during the prevention campaign, the OSCC diagnosis rate is 0.078%, benign lesions are 5.77%, OPML is 1.95% and the diagnosis rate of variations of normality is 2.41%.

Of the OPMD diagnosed in the campaign (n=25), the most prevalent was the OL (52%),

followed by OLP (20%), OE 16%, and AC (12%) (Table 2). The final diagnosis for benign conditions and normality variations are described in Table 2. The most frequent benign condition diagnosed was the candidiasis (24.32%), followed by two mesenchymal benign neoplasia: fibroma (18.92%) and hemangioma (14.86%). The most frequent normality variation was tongue varicosities (38.7%), followed by fissured tongue (29.03%).

Table 2 – Diagnosis of OPMD, benign lesions and normality variations in the oral cancer prevention campaign, Fernandópolis, SP, Brazil, 2016.

| Oral potentially malignant disorders | n=25  | %     |
|--------------------------------------|-------|-------|
| Oral leukoplakia                     | 13    | 52    |
| Oral lichen planus                   | 5     | 20    |
| Oral erythroplakia                   | 4     | 16    |
| Actinic cheilitis                    | 3     | 12    |
| Benign lesions                       | n= 74 | %     |
| Candidiasis                          | 18    | 24.32 |
| Fibroma                              | 14    | 18.92 |
| Hemangioma                           | 11    | 14.86 |
| Fibrous inflammatory hyperplasia     | 9     | 12.16 |
| Aphthous ulcer                       | 8     | 10.81 |
| Papilloma                            | 4     | 5.40  |
| Mucocele                             | 4     | 5.40  |
| Pigmented nevus                      | 2     | 2.71  |
| Amalgam tattoo                       | 2     | 2.71  |
| Lipoma                               | 1     | 1.36  |
| Trigeminal neuralgia                 | 1     | 1.36  |
| Normality variations                 | n=31  | %     |
| Tongue varicosities                  | 12    | 38.70 |
| Fissured tongue                      | 9     | 29.03 |
| Torus (palatal or mandibular)        | 5     | 16.12 |
| Migratory erythema                   | 2     | 6.45  |
| Racial pigmentation                  | 2     | 6.45  |
| Fordyce granules                     | 1     | 3.22  |

## **Discussion**

Although challenging, early diagnosing oral cancer is mandatory for improving affected patients' quality of life and chances of cure and long-term survival<sup>1</sup>. Efforts given from researches of the area for implementing population screening for early oral cancer diagnosis and awareness regarding this disease are not recent<sup>2,8</sup>. In the presented campaign for OSCC and OPMDs prevention and early detection, we were able

to identify two major flaws that need prior attention for improving this issue: population knowledge and awareness regarding oral cancer, and dentists' knowledge and capacity to recognize suspicious lesions in the oral mucosa.

Many studies reported the lack of general population awareness and knowledge regarding oral cancer<sup>2,9</sup>. In the present, we believe that the diagnosis of only one OSCC and 25 OPMDs from 1.282 screened patients may reflect that the real at-risk population was not reached. Methods for recruiting these patients for oral examination must be improved. We hypothesize that the first step is to investigate and implement methods for raising awareness within this at-risk population, therefore they would be more prone to respond for oral cancer screening calls.

On the other hand, we observed that 102 patients were referred for reassessment by a specialist due to suspicious lesions and 94 attended the DSCs for final diagnosis. Although 8 patients were lost, in two previous publications by our group describing results from previous campaigns in 2014<sup>10</sup> and in 2015<sup>11</sup>, the number of patients who did not attend for final diagnosis were, respectively, 40 and 24. A decrease in the number of patients who do not show for the final diagnosis is clear. This decrease suggests that the frequency of the campaign might be influencing positively on the awareness of this specific population regarding the prevention and early diagnosis of OSCC. More years of prevention work are necessary to confirm this hypothesis. However, the real at-risk population still needs to be assessed.

Despite the importance of the general OSCC population awareness regarding and OPMDrisk factors and symptoms, the awareness, knowledge, and capacity of recognizing and diagnosing these lesions of the healthcare providers are described as deficient in most studies and need to be assessed<sup>7,12</sup>. The low rate of OSCC and OPMDs diagnosed in this study (Table 1) suggests that dentists who performed oral examination during population screening were unable to accurately recognize OSCC and OPMD. Although dentists referred these lesions to specialized diagnosis, the high

rates of unnecessary referrals suggest that these professionals failed to differ high-risk lesions from benign conditions. The benign conditions and normality variations are of unquestionable importance for the dental clinic. However, regarding prevention of OSCC, OPMDs are more relevant.

### **Conclusions**

Within the limitations of this study, the following conclusions can be drawn. More than the execution of population screening in OCPCs, the access to the at-risk for OSCC population need improvements. Strategies for awareness and educations regarding OSCC risk factors, self-examination and symptoms within this population need to be implemented. Dentists are not prepared to recognize and diagnose neither OSCC nor OPMD. The deficiencies faced in the present campaign need to be better understood, so we can propose and implement improvements.

#### Resumo

Objetivo: neste artigo, descrevemos os resultados de uma campanha de prevenção do câncer de boca para detectar e diagnosticar precocemente câncer de boca e lesões bucais potencialmente malignizaveis. Sujeitos e método: uma triagem populacional foi realizada em um dia em que a população foi recrutada por meios de comunicação de mídia local. Pacientes com lesões suspeitas foram encaminhados para diagnóstico final com especialista em Estomatologia e Patologia Bucal. Resultados: dos 1.282 pacientes selecionados, 104 foram encaminhados para atendimento especializado e 94 atendidos para diagnóstico final. Desses, apenas um (1,06%) paciente foi diagnosticado com carcinoma espinocelular de boca e 25 (26,5%) com lesões bucais potencialmente malignizaveis, enquanto as taxas de diagnóstico para condições benignas e variações de normalidade foram, respectivamente, 78,7% e 32,9%. Conclusão: esses resultados sugerem baixa conscientização sobre o câncer bucal nessa população, falta conhecimento sobre o câncer bucal por dentistas e a necessidade de melhorias no acesso à população em risco de câncer bucal.

Palavras-chave: Neoplasias Bucais. Promoção de saúde. Prevenção primária.

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