



SURVIVAL RATES IN ORAL CANCER PATIENTS – A 10-YEAR RETROSPECTIVE STUDY

Konstantin Tonchev¹, Boyan Vladimirov²

1) Department of Maxillofacial Surgery, Medical University – Plovdiv, Bulgaria

2) Clinic of Maxillofacial surgery, University Hospital “St. George”, Plovdiv, Bulgaria

ABSTRACT:

Oral cancer is the eighth most common cancer worldwide and presents a serious health problem in countries with higher alcohol consumption and smoking.

The aim of the present study was to analyze the survival rates of patients with oral cancer diagnosed at a single center in Bulgaria.

The clinical records of patients with oral cancer admitted to the Clinic of Maxillofacial surgery, University Hospital “St. George”, Plovdiv, Bulgaria, from 2004 till 2013 were reviewed. Additional information about follow-up was obtained from the Regional Complex Oncological Centre (RCOC). Data about patient and tumor characteristics – age, sex, site of cancer, stage, degree of differentiation and survival rates were analysed.

The overall 5-year survival rate was 36% while the disease-specific survival rate was 45%. The highest chance for survival was for upper lip (66%) while the lowest was for retromolar trigone (0%). Overall survival rate depended also on the stage and grade of differentiation of the tumor.

The study confirmed that oral cancer remains serious problem in terms of risk factors, delayed diagnosis and overall survival rates.

Key words: oral cancer, retrospective study, survival rate.

INTRODUCTION

Oral squamous cell carcinoma is an invasive epithelial neoplasm with varying degrees of squamous differentiation and a propensity to early and extensive lymph node metastases. It represents more than 90% of malignant neoplasms of the oral cavity and oropharynx [1]. The annual estimated incidence is 275 000 with wide geographical variations and two thirds of the cases occurring in developing countries [2]. In Europe cancer of the oral cavity and pharynx was responsible for 67000 new cases [2] in 2004 and 73000 new cases and 28200 deaths [3] in 2012. Developing countries suffer from higher incidence rates in oral cancer than developed countries [4]. The incidence rates are higher in Western Europe compared with Northern or South-

ern Europe with highest ones in France, Hungary, Slovakia and Slovenia. Highest mortality rates, however, are reported from Eastern Europe.

The **aim** of the present study was to analyze the survival rates of patients with oral cancer diagnosed at a single center in Bulgaria.

MATERIAL AND METHODS

The clinical records of 16410 patients admitted to the Clinic of Maxillofacial surgery, University Hospital “St. George”, Plovdiv, Bulgaria, from 2004 till 2013 were reviewed. 383 patients with histologically proven diagnosis of oral cancer were identified. Additional information about follow-up was obtained from the Regional Complex Oncological Centre (RCOC). Such information was available for 273 patients who were included in the present study.

Data about age, sex, site, stage and histological degree of differentiation was gathered. The sites of oral cancer (tongue, floor of mouth, hard palate, retromolar trigone/area, upper gingiva, lower gingiva, buccal mucosa, lips), stages (I, II, III, IV) and degree of differentiation (well, moderately, poorly, undifferentiated) were recorded according to the TNM classification of carcinomas of the oral cavity and oropharynx [5].

Descriptive statistics were used to analyze the data. Kaplan-Meier statistics were utilized to estimate the survival rates. Log-rank test was used to find differences in survival between different patient groups. Median survival time (MST) with 95% Confidence Interval (CI%) and 5-year survival rates were also calculated. SPSS software (Chicago, IL) was used for the statistical analysis.

RESULTS

Demographic characteristics

The mean age of the 273 patients included in the study was 63.21±12.62 and most (75%) of them being between 50 and 80 years of age. The youngest patient was 13 and the oldest one - 93 years old (Figure 1).

Oral cancer was diagnosed in 221 males (81%) and 52 females (19%) (Figure 2).

Fig. 1. Distribution of patients with oral cancer according to age.

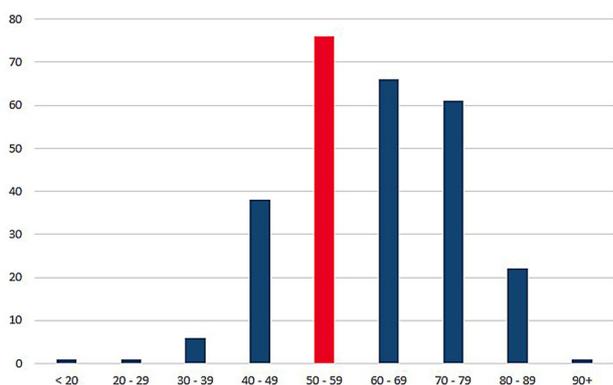
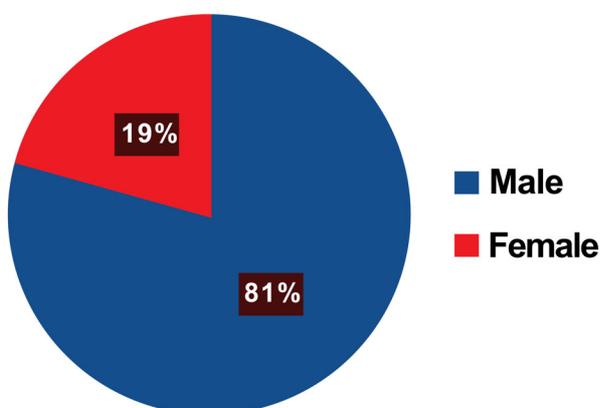


Fig. 2. Distribution according to sex.



Tumor characteristics

The distribution of patients according to the site of cancer origin is presented in Figure 3. Our findings showed that the lips were affected in 91 cases (33%), followed by tongue and floor of the mouth and they were the most commonly involved sites. The retromolar trigone, hard palate and buccal mucosa were affected in 8 cases (3%) each and were least likely to give rise to oral cancer.

Fig. 3. Distribution according to site

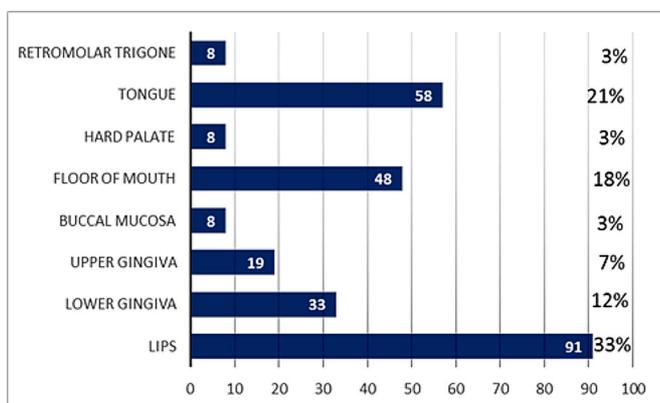
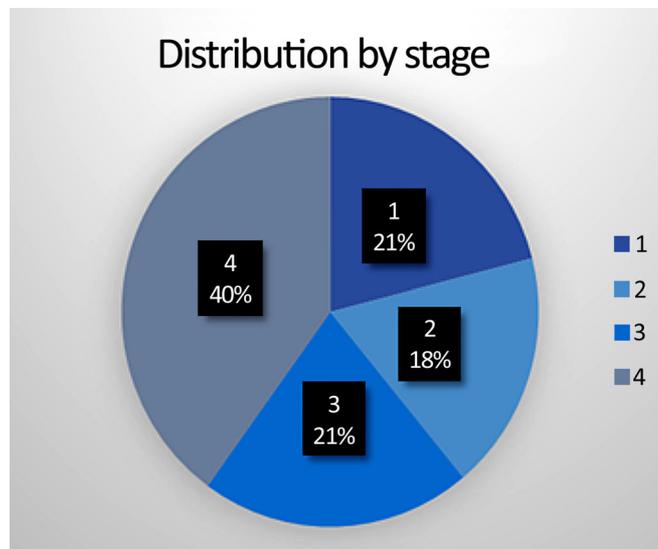


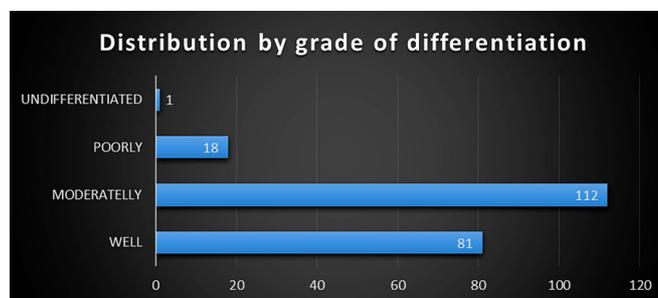
Figure 4 presents patients with stage IV oral cancer at the time of diagnosis were the most numerous group of patients – 40 % (110cases), stage III (58cases), stage I (56 cases), stage II (49cases). Stage IV combined 3 sub-stages as follows - stage IVA (94cases), stage IVB (7 cases) and stage IVC (9cases).

Fig. 4. Distribution according to tumor stage.



Most of the oral cancers were moderately differentiated – 112 cases (53%) (Figure 5)

Fig. 5. Distribution according to grade of differentiation.



Survival

Figure 6 presents overall 5-year survival rate which was 36 % (SEM, 3%) with median survival time of 25 months (95% CI, 16-33 months).

Disease-specific 5-year survival rate was 45 % (SEM, 3%) with a median survival of 34 months (95% CI, 12-55 months)

The overall 5-year survival rate for males was 37 % and for females 30 %.

Fig. 6. Overall 5-year survival curve.

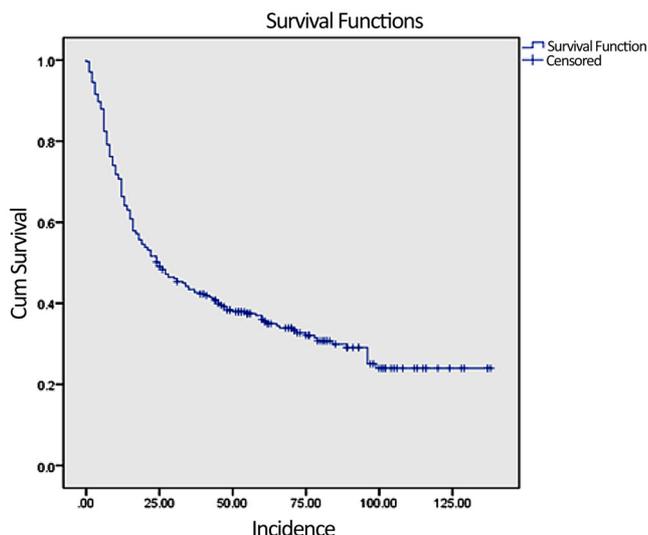


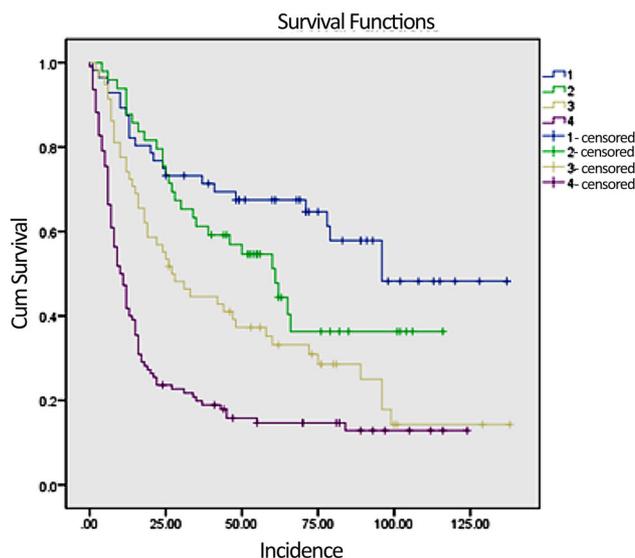
Table 1 presents the overall 5-year survival rate according to site with the highest survival rate for upper lip (66%) and the lowest for retromolar trigone (0%). Log-rank (Mantel-Cox) showed that the curves differed significantly ($\chi^2 = 60.13$, $p < 0.05$)

Table 1. Overall 5-year survival rates for different sites

Site	Overall 5-year survival rate %
Upper lip	66%
Lower lip	50%
Lower gingiva	20%
Upper gingiva	36%
Buccal mucosa	13%
Floor of mouth	16%
Hard palate	25%
Tongue	26%
Retromolar trigone	0%

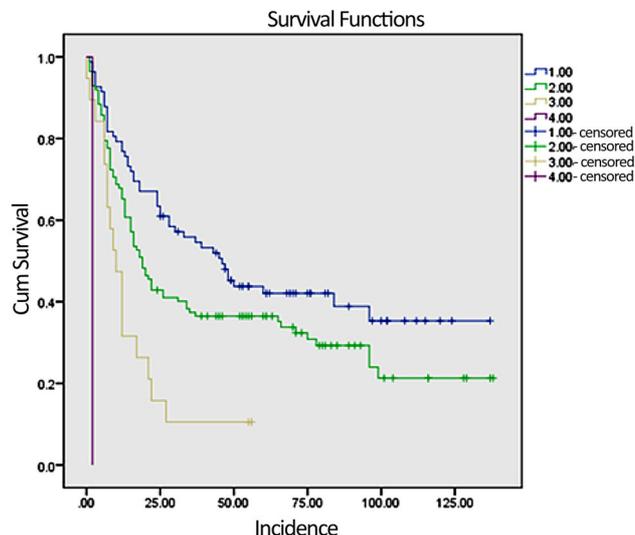
The overall 5-year survival rate by stage was found to be as follows – stage I (67%), stage II (51%), stage III (33%), stage IV (15%) (Figure 7). Log-rank (Mantel-Cox) showed that the curves differed significantly ($\chi^2 = 65.155$, $p < 0.05$).

Fig. 7. Overall 5-year survival rate according to stage.



The well (42%) and moderately (36%) differentiated cancers demonstrated better survival in our study in comparison to poorly (0%) and undifferentiated (0%) oral cancers (Figure 8). Log-rank (Mantel-Cox) showed that the curves differed significantly ($\chi^2 = 29.920$, $p < 0.05$).

Fig. 8. Overall 5-year survival rates according to grade of differentiation (1 - well; 2 - moderate; 3 - poor; 4 - undifferentiated).



DISCUSSION

In this study, data of oral cancer as recorded over a period of 10 years was analysed. The character of the retrospective study meant insufficient data about cancer characteristics and follow-up visits, which had effect on the collected and presented results.

This analysis of the cancer burden in Bulgaria reveals variations in incidence and mortality rates. In most countries around the world including Bulgaria oral cancer is more

common in men than in women. Many countries feature incidence rates in oral cancer that vary in men from 1 to 10 cases per 100 000 population [6]. The ratio of males to females diagnosed with oral cancer has declined over the decades and is now about 1.5:1 [1]. The estimated data for age and sex distribution corresponds with data from other studies in Bulgaria. [7, 8, 9, 10, 11]. Reported sex differences are attributable to heavier indulgence in risk habits by men and exposure to sunlight (for lip cancer). There are various risk factors but the strongest impact is due to tobacco and alcohol consumption. Due to the retrospective nature of the study and unreliable data recording of the presence of risk factors, those were not analyzed in the present investigation.

Risk of developing oral cancer increases with age and majority of cases occur in people aged 50 or over which is confirmed by data from 2000 to 2004 in USA – the median age of diagnosis was 62 years, which is close to the results in the present study (63.21 years) [2]. There is a continuous age drop that is observed also worldwide. Furthermore, most of cases were in advanced stages at the time of diagnosis despite easy accessibility of the oral cavity for regular examinations maintaining oral cancer as a lethal disease. The stage of disease at diagnosis was associated with the 5-year survival rate. When diagnosed at early stages of develop-

ment, oral cancer have better prognosis. Unfortunately, about two-thirds of patients were diagnosed with stages III-IV advanced cancers that are generally related to a poor prognosis group.

The overall 5-year survival rate is 62% in industrial countries, while in developing countries they hardly reached the rate of 30% [12]. The presented results (27%) corresponded to the survival rate in the developing countries. The death rate associated with this cancer is particularly high not because it is difficult to detect or diagnose, but due to the cancer being routinely diagnosed late. Furthermore increased vulnerability of existing old treatment modalities should be considered, conferring a significant survival disadvantage.

CONCLUSIONS

The present study pointed to an alarming lack of awareness about oral cancer, its symptoms and causes as well as disturbing overall survival rates of patients diagnosed at our institution.

In order to address delays in diagnosis we have to set up and establish guidelines for elaborate documentation of cases, promote self-awareness in terms of oral lesions and timely referral of suspicious oral lesions to cancer centers.

REFERENCES:

1. Lortet-Tieulent J, Renteria E, Sharp L, Weiderpass E, Comber H, Baas P, et al. Convergence of decreasing male and increasing female incidence rates in major tobacco-related cancers in Europe in 1988-2010. *Eur J Cancer*. 2015 Jun;51(9):1144-63. [PubMed]
2. Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. *Oral Oncol*. 2009 Apr-May; 45(4-5):309-16. [PubMed]
3. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. *Eur J Cancer*. 2013 Apr;49(6):1374-403. [PubMed]
4. Petersen PE. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century—the approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol*. 2003 Dec;31 Suppl 1:3-23. [PubMed]
5. International Agency For Research On Cancer. Tumours of the oral cavity and oropharynx. Chapter 4. 2013; pp.163-208. [Internet]
6. World Cancer Report. Edited by BW. Stewart, P. Kleihues. IARC Press. 2003. [Internet]
7. Ugrinov R, Sharankova M, Raycheva V, Nikiforova H. [Malignancies in the maxillo-facial region – frequency and distribution according to age and sex] [in Bulgarian] *Bulgarian surgery*. 2003, III(1):11-12.
8. Sarachev EL, Ananostev NH. Lower lip cancer morbidity in three regions in South Bulgaria for a period of 15 years (1985-1999). *Folia Med (Plovdiv)*. 2001; 43(1-2):140-4. [PubMed]
9. Sarachev EL, Ananostev NH. Tendencies in the oral cavity cancer morbidity in three regions of South Bulgaria for a period of 15 years (1985-1999). *Folia Med (Plovdiv)*. 2001; 43(1-2):150-154. [PubMed]
10. Tonchev T. [Epidemiology of lower lip carcinoma in the region of Varna.] [in Bulgarian] *Savremenna stomatologia*. 2008; 39(1):3-8.
11. Stanimirov P. [Clinical and epidemiological study on tongue cancer over a period of 13 year.] [in Bulgarian] *J of IMAB*. 2004; 10(2):113-114. [CrossRef]
12. American Cancer Society. Cancer Facts & Figures 2013. [Internet]

Please cite this article as: Tonchev K, Vladimirov B. Survival rates in oral cancer patients – a 10-year retrospective study. *J of IMAB*. 2016 Oct-Dec;22(4):1385-1388. DOI: <https://doi.org/10.5272/jimab.2016224.1385>

Received: 14/10/2016; Published online: 12/12/2016



Address for correspondence:

Konstantin Tonchev, Department of Oral Surgery, Faculty of Dental Medicine, Medical University Plovdiv
3, Hristo Botev Blvd, 4000 Plovdiv, Bulgaria
Mobile: +359 898 509 820
E-mail: k_tonchev@yahoo.com