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The Prevalence of Squamous Cell Carcinoma of The Oral Cavity at Hasan Sadikin Hospital in 2015-2018

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Abstract: Squamous cell carcinoma is a type of cancer in soft tissue that has the highest incidence The national prevalence of tumors /oral cancer in Indonesia in 2007 was 0.4%. A total of 9 provinces have tumor/cancer prevalence above the national prevalence. The risk of squamous cell carcinoma is greater in individuals with several habits such as tobacco use and alcohol consumption. The purpose of this study was to determine the number of cases, frequency distribution of cases, and the prevalence of squamous cell carcinoma of the oral cavity at Hasan Sadikin Hospital Bandung in 2015-2018. This research was conducted retrospectively by taking secondary data from patients with squamous cell carcinoma. From this study it was found that the prevalence of squamous cell carcinoma patients based on the year of 2015-2018 was 0,22%, the majority of the patients are male with percentage were 95.21%, while 4.79% were female, most squamous cell carcinomas are located on the tongue.

Keywords: squamous cell carcinoma; oral cavity; prevalence

INTRODUCTION

Squamous cell carcinoma is an invasive neoplasm of the epithelial tissue of the oral cavity with varying degrees of differentiation. Most of these tumor lesions are diagnosed at stages 3 and 4, leading to a poor prognosis.[1] Squamous cell carcinoma can occur on the lower lip, floor of the mouth, ventral and lateral parts of the tongue, retromolar area, tonsils and lateral of the soft palate.[2] Squamous cell carcinoma. tends to rapidly metastasize and spread.[3] Data from the World Health Organization (WHO) published in 2008 states that as many as 7.6 million people worldwide die from cancer, 70% of cases of cancer deaths occur in developing countries and only 30% are successfully treated.[4] Relatively recent data indicate that the incidence of neoplastic head and neck lesions is high, squamous cell carcinoma ranks sixth in the worldwide.[1] In the United States more than 21,500 cases of oral carcinoma are diagnosed annually and more than 6,000 Americans die each year from that disease.[1]

The incidence of head and neck carcinoma varies widely in different regions of the world. In North America and the European Union, head and neck cancer represents 3–4% of all cancer cases diagnosed each year. In contrast, in South Asia and Africa, head and neck cancer has a higher incidence, almost double that in the United States and the European Union, representing about 8% to 10% of all forms of cancer.[1] The incidence of oral carcinoma is approximately 90% of all types of malignancies found in the oral cavity, and the frequency of oral squamous cell carcinoma in Indonesia reaches 3-5% of all other organ cancers.

The national prevalence of tumors/cancer of the oral cavity in Indonesia in 2007 was 0.4%. A total of nine provinces have tumor/cancer prevalence above the national prevalence. These provinces are West Sumatra, DKI Jakarta, West Java, Central Java, DI Yogyakarta, Banten, Bali, North Sulawesi, and South Sulawesi.[5] Out of 18,792 patients in the Department of Nose, Ear, and Throat Disease, Hasan Sadikin Hospital Bandung, there were 1,439 head and neck cancer patients in the 2010-2014 period with a prevalence of 7.6%.[3]

Based on the things described above, the researchers felt the need to conduct research on the prevalence of squamous cell carcinoma and the frequency distribution of squamous cell carcinoma cases in the oral cavity based on gender, age, location and therapy received by patients in the Hasan Sadikin Hospital for the period of January 1, 2015 to December 31, 2018.

METHODS

This research was conducted in a retrospective descriptive by taking data from patients with squamous cell carcinoma of the oral cavity who were treated at Hasan Sadikin Hospital in Bandung for the period January 1 2015 - December 31 2018. The materials used in this study were secondary data in the form of medical records of patients with squamous cell carcinoma of the oral cavity. was treated at Hasan Sadikin Hospital in Bandung for the period January 1, 2015 - December 31, 2018.

The data observed in this study were the prevalence of oral squamous cell carcinoma and how the spread of oral squamous cell carcinoma cases based on gender, age, location of carcinoma, disease progression of patients at Hasan Sadikin Hospital in the period January 1, 2015 to December 31, 2018. A disease can be defined as the number of people in a population who have been diagnosed with the disease, and who are still alive at any given time.

Researchers collected and recorded the prevalence of squamous cell carcinoma of the oral cavity and how the spread of cases of squamous cell carcinoma of the oral cavity based on gender, age, location and therapy received by patients based on data obtained from Hasan Sadikin Hospital medical records on January 1, 2015 - December 31 2018. The data collected is processed simply by making a frequency distribution table and presented in diagrammatic form.

RESULT

The research data were analyzed using univariate analysis with a total of 320 patients.

Table 1. Number of Squamous Cell Carcinoma Patients Based on Cumulative Frequency of Total New Patients By Year

Year	Total Patient	Number of Magnilnant Neoplasm Cases	Prevalence
2015	39.569	89	0,22%
2016	35.784	92	0,26%
2017	35.995	68	0,19%
2018	37.249	71	0,19%
Total	148.597	320	0,22%

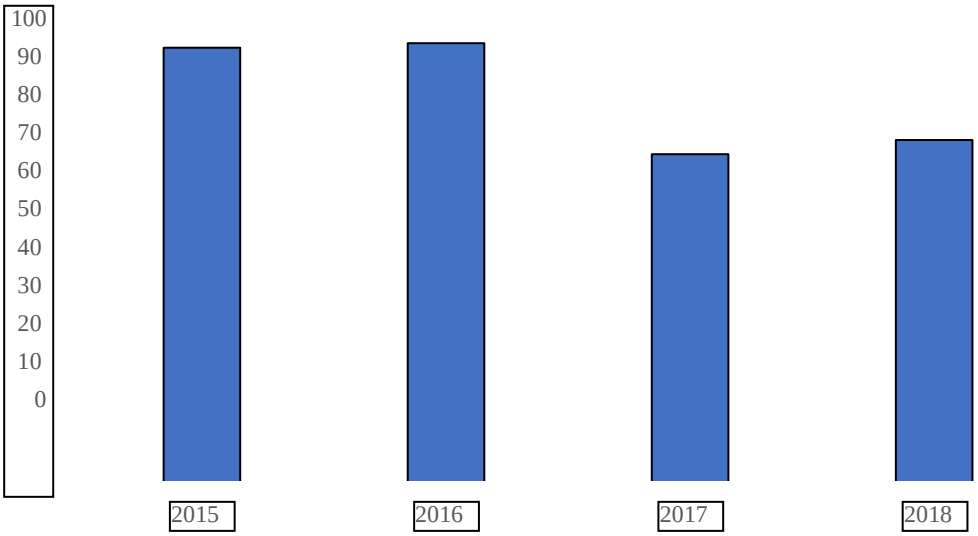

Figure 1. Number of Squamous Cell Carcinoma Patients Based on Year

Table 1 and Figure 1 describe the number of squamous cell carcinoma patients by year. Based on the table, it can be seen that as many as 0.22% of patients suffered from squamous cell carcinoma in 2015, as many as 0.26% of patients had squamous cell carcinoma in 2016, 0.19% of patients had squamous cell carcinoma in 2017 and 0,19% had squamous cell carcinoma in 2018.

Table 2. Patient Characteristics Based on Gender

Gender	Frequency	Percentage
Male	304	95,21
Female	16	4,79
Total	320	100

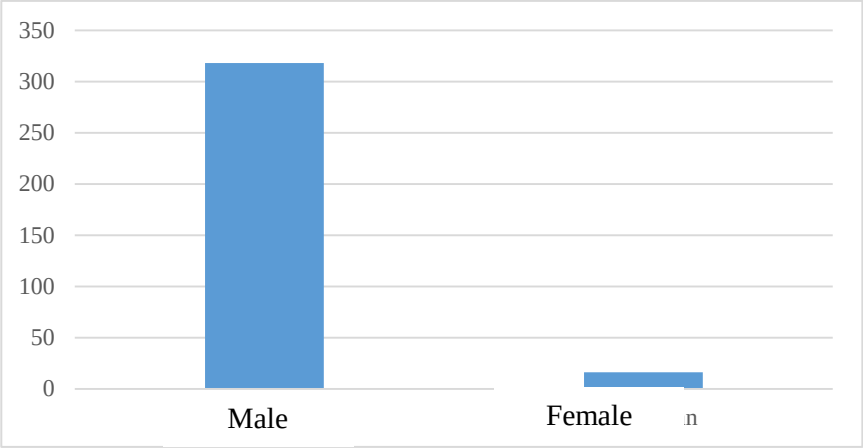

Figure 2. Patient Characteristics by Gender

Based on Table 2 and Figure 2 above, it is known that most of the squamous cell carcinoma sufferers 95.21% are male, while 4.79% are female.

Table 3. Patient Characteristics Based on Age

Age	Frequency	Percentage
< 40	91	28,44
40 - 49	76	22,75
50 - 59	91	27,25
60 - 69	50	16,47
70 - 80	12	5,09
Total	320	100

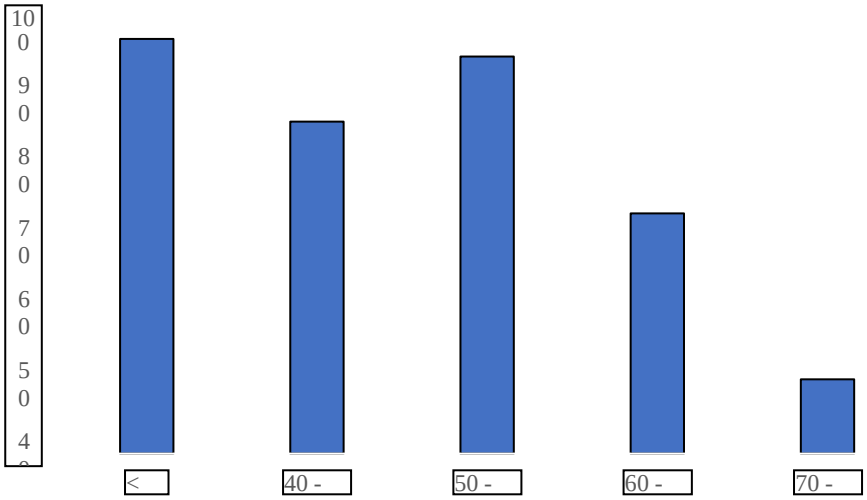

Figure 3 Patient Characteristics Based on Age

Table 3 and Figure 3 describe patient characteristics by age. From the results of the study, it is known that the majority of patients, 28.44% were less than 40 years old, 27.25% patients were around 50-59 years old, as many as 22.75%, patients were around 40-49 years old, as many as 16.47%, patients aged around 60 - 69 years and 5.09% of other patients aged around 70 - 80 years.

Table 4. Number of Squamous Cell Carcinoma Patients Based on Location of Carcinoma

Location	Frequency	Percentage
Lip	90	29,04
Gingiva	28	8,75
Tongue	132	40,72
Mucosa	13	3,89
Palate	47	14,07
Tonsil	4	1,20
Vestibule	6	1,80
Total	320	100

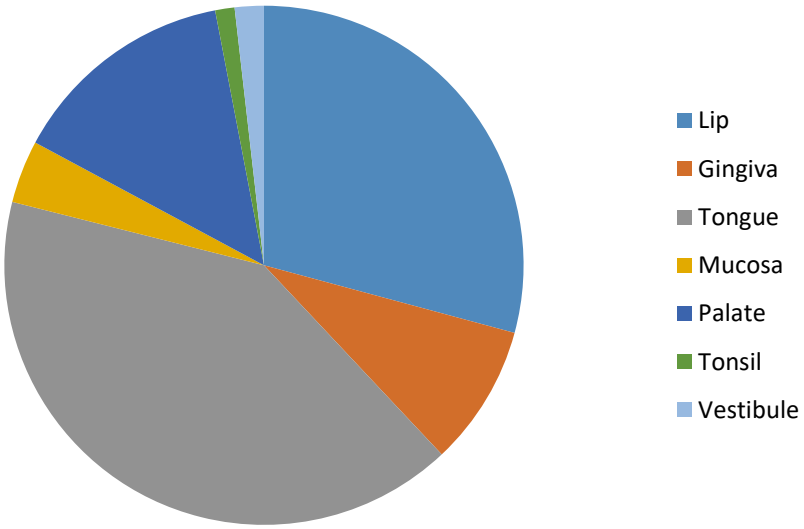

Figure 4. Number of Squamous Cell Carcinoma Patients Based on Carcinoma Location

Based on Table 4 and Figure 4 above, it is known that the most common carcinomas are located on the tongue (40.72%). The second most common location is on the lips (29.04%). The next sequence was the palate (14.07%), gingiva (8.75%), mucosa (3.89%), vestibule (1.80%), and tonsils (1.20%).

Table 5. Number of Squamous Cell Carcinoma Patients Based on Disease Progress

Progress	Frequency	Percentage
Died	14	4,19
Improvement	286	91,32
Recover	6	1,80
Not recover	9	2,69
Total	320	100

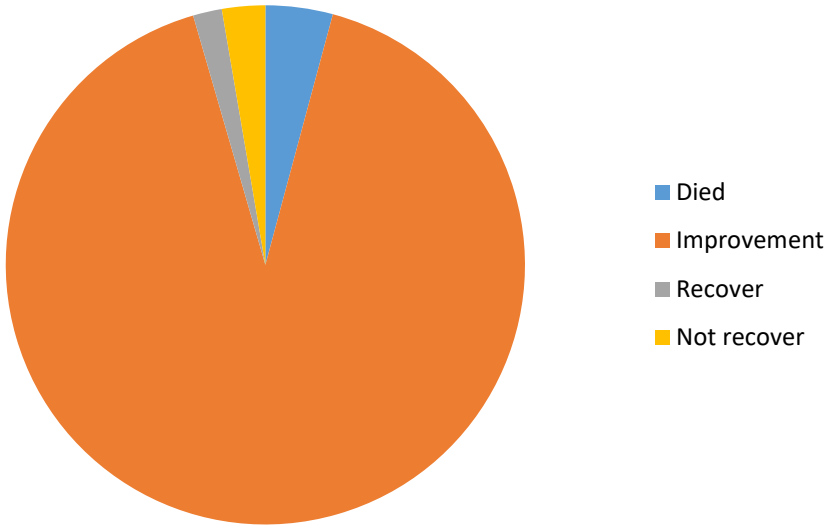

Figure 5. Number of Squamous Cell Carcinoma Patients Based on Disease Progress

Table 5 and Figure 5 describe the patient's description of the squamous cell carcinoma based on the progress of the disease. From the results of the study, it is known that most of the patients studied were 91.32% categorized as experiencing improvement, 4.19% of patients died, 2.69% of patients did not recover, and 1.80% were categorized as cured.

DISCUSSION

The results showed that cases of squamous cell carcinoma at Hasan Sadikin Hospital for the period January 1, 2015 - December 31, 2018 were 320 people. New patient of squamous cell carcinoma in 2015 as much as 0.22%, in 2016 as much as 0.25%, in 2017 as much as 0.18%, and in 2018 as much as 0.19%. The trend of oral cancer is not uniform around the world. For example, there is an increasing trend in oral cancer and the incidence of tongue cancer in men and women in Northern and Eastern Europe, Asia, China, and India. Changes in alcohol and tobacco consumption can change trends in the incidence and mortality of oral cancer.[1] Research conducted in Yogyakarta, Indonesia from 2011 to 2015, shows that there is an increase in the number of squamous cell carcinoma cases each year with the highest prevalence in men. [6] This is slightly different from the findings in this study, where the cases of squamous cell carisnoma did not show a consistent increase every year, but fluctuated. However, when viewed from the beginning of the study year to the end of the study year, the prevalence had decreased. There are several things that might affect this: (1) the duration of the disease, (2) the patient's ability to live, (3) new cases either from within or outside the area, (4) diagnostic ability.[7]

Based on the results of the study, as many as 95.21% patients were male, while 4.79% others were female. Research conducted in Yogyakarta, Indonesia suggests the same finding.[6] This is different from the research conducted by Sharma et al in India, that the prevalence of oral squamous cell carcinoma is more common in women.[8] However, this study is in line with the theory that says that the highest incidence rates are found in developing countries in South and Southeast Asia, Latin America, and Eastern Europe. In India, Sri Lanka and Pakistan oral cancer is one of the most common cancers in men, accounting for up to 30% of all new cancer cases. The highest age incidence rate for tongue and oral cavity cancer in men and women in the world is in Pakistan.[9] However, the research conducted by Hui Ng states that there is a shift in the trend of squamous cell carcinoma of the tongue, becoming more common in female than in male.[10]

In Indonesia, squamous cell carcinoma cases are more common in men than women because there are more male smokers than women. The latest data from the 2019 Global Youth Tobacco Survey (GYTS) released on May 30, 2020 shows that 40.6% of students in Indonesia (aged 13-15 years), 2 out of 3 boys, and nearly 1 in 5 children women have already used tobacco products. 19.2% of students currently smoke and of these, 60.6% are not even prevented from buying cigarettes because of their age, and two thirds of them can buy cigarettes at retail.[11] All forms of use tobacco, including cigarettes, cigars, and pipe smoking and various types of tobacco have a fairly high prevalence. The risk of laryngeal cancer was most strongly associated with smoking, followed by cancers of the oral cavity and pharynx. Smoking causes diffuse changes throughout the mucosa and upper aerodynamic tract which predispose to cancer.

Based on the results of this study, it is known that the majority of patients studied were 28.44% aged less than 40 years, as many as 27.25% patients aged around 50 - 59 years, as many as 22.75% of patients aged 40-49 years, as many as 16.47% were around 60 - 69 years old and 5.09% of other patients were around 70 - 80 years old. This finding is in line with that stated by Hui Ng et al, who stated that 14 of the 22 study areas had an increased incidence of oral squamous cell

carcinoma occurring more in subjects under 45 years of age than those over 45 years.[10] Most cases of oral cancer occur over the age of 50, but about 6% occur in people under the age of 45, which are caused by bad habits such as tobacco and alcohol consumption at a very young age and other risk factors such as human papillomavirus, and passive smoking.[9] There has been a significant increase in the prevalence of squamous cell carcinoma of the oral cavity occurring in young adults in recent decades. Exposure of the oral epithelium to carcinogenic substances at a very young age can reduce the latent period of carcinogenesis in this group.[12] Alcohol and tobacco consumption are the main contributing factors for squamous cell carcinoma of the oral cavity in young adults.[12]

The majority of squamous cell carcinoma patients in this study were 40.72% in the tongue position, 29.04% in the lip position, as much as 14.07% in the palate position, as much as 8.75% were in the gingival position, as many as 3.89% were in the mucosal position, 1.80% were in the vestibular position and 1.20% were in the tonsil position. This finding is somewhat different from the findings in Loni, Maharashtra, India, where squamous cell carcinoma of the oral cavity is mostly found in the buccal mucosa, and most of the sufferers are over 50 years of age.[13] Another study in India in the Western Uttar Pradesh region, also stated the same thing with the findings in Loni, that squamous cell carcinoma of the oral cavity occurs mostly in the buccal mucosa, followed by the retromolar area, floor of the mouth, tongue, labial mucosa, and the least amount of which is found in the palate.[8] However, this study supports the results of a study that conducted by Hui Ng et al, who stated that currently in the world there is an increasing incidence of squamous cell carcinoma of the tongue.[10] The tongue is rich in lymphatic tissue and muscle, which has many blood vessels, so it is not sufficient to protect itself from tumor invasion and metastasis. Metastasis is one of the important characteristics of malignancy. Tobacco exposure causes progressive epithelial cell changes. Long-term exposure to tobacco occurs continuously causing changes towards malignancy, especially changes in permanent mutations.[14] Cancer of the tongue can also be caused by viruses, dental status, exposure from work and the environment, diet, iron deficiency, and immunodeficiency. Another study in West Java, Indonesia, conducted by Maulina et al. suggested that squamous cell carcinoma of the oral cavity was found mostly in the buccal area, while research conducted by Gracia et al suggested that squamous cell carcinoma occurred mostly on the tongue.[3,6] The incidence of oral squamous cells carcinoma vary widely at different geographic locations, and even within a single geographic area the incidence may vary by age, gender, or habit.[8]

Most of the patient's records studied, as much as 91.32% were categorized as experiencing improvement due to the speedy treatment measures were carried out, as many as 4.19% of patients died, 2.69% of patients did not recover and 1.80% were categorized as cured. From the results of the study, it is known that out of 320 people diagnosed with malignant neoplasm, the majority were 28.1% aged around 50 - 59 years. Regional variations in death rates from oral cancer are largely due to differences in exposure to major risk factors such as tobacco and alcohol consumption, availability and quality of treatment, completeness of reporting, and population age structure. The number of deaths occur within a certain period in a given population and can be expressed as the number of deaths per year or as a rate per 100,000 people per year. The global death rate, by age due to oral cancer, is estimated at 2.6 per 100,000 men and 1.2 per 100,000 women.[9] The death rate due to squamous cell carcinoma at Hasan Sadikin Hospital in 2015–2018 was 14 people, a decrease in the mortality rate.

The weakness in this study is that data collection is done using secondary data, where there is no direct examination of the patient's medical record. Another drawback of this study is that the researcher only looks for prevalence data without knowing the origin of the area, bad habits, medication or treatment performed by the respondent, data collection for all patients can only be obtained for new patients, some patients do not return to take the treatment so that no further data was obtained.

The high incidence of oral cancer in many countries with limited health care resources emphasizes the importance of a preventive approach to control the disease. Geographical trends over time indicate the importance of lifestyle and habits in the development of oral cancer. Large-scale, multicenter studies have enabled the evaluation of a number of risk factors related to lifestyle and habits, which should help guide ongoing efforts towards primary prevention.[15]

During the observation, researchers have not seen any educational or counseling actions taken to prevent squamous cell carcinoma. has not been exposed. However, so far the hospital has provided education and counseling about the dangers of smoking and provided counseling and integrated therapy for the general public for smoking cessation services.

CONCLUSION

Based on the results of data analysis and discussion described in the previous section, the authors draw the following conclusions: (1) The number of cases of squamous cell carcinoma of the oral cavity at Hasan Sadikin Hospital in the period 1 January 2015 to 31 December 2018 was 320 cases, with a percentage squamous cell carcinoma in 2015 as much as 0.22%, in 2016 as much as 0.25%, in 2017 as much as 0.18% and in 2018 as much as 0.19%; (2) In general, the distribution of cases of squamous cell carcinoma in the oral cavity at Hasan Sadikin Hospital in the period January 1, 2015

to December 31, 2018 was men, the most suffers age was below 40 years, and the most common location was in the tongue.

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