

Hamsu Kadriyan 14 Prosiding Inter

by Hamsu Kadriyan 14

Submission date: 07-Aug-2022 12:20PM (UTC+0700)

Submission ID: 1879634565

File name: Hamsu Kadriyan 14 Prosiding Inter.pdf (891.78K)

Word count: 2499

Character count: 12820

PAPER · OPEN ACCESS

Risk factors and characteristics of laryngeal carcinoma in the developing region of Indonesia

4
To cite this article: H Kadriyan *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **712** 012021

View the [article online](#) for updates and enhancements.



240th ECS Meeting ORLANDO, FL

Orange County Convention Center Oct 10-14, 2021

Abstract submission due: April 9

SUBMIT NOW

Risk factors and characteristics of laryngeal carcinoma in the developing region of Indonesia

H Kadriyan^{1*}, M A Sulaksana¹, I G A T Aryani¹, D Yudhanto¹, E A Yuliyani¹, I L Harahap², and A A N Wedayani³

¹Department of Otolaryngology Head and Neck Surgery, Faculty of Medicine, Mataram University, Mataram, Indonesia

²Department of Anatomy, Faculty of Medicine, Mataram University, Mataram, Indonesia

³Department of Pharmacology, Faculty of Medicine, Mataram University, Mataram, Indonesia

*Corresponding author: hamsu@unram.ac.id

Abstract. In developing regions such as West Nusa Tenggara (WNT), Indonesia, industry, transportation, and lifestyle were also developed synergistically. This development will lead to several consequences such as air pollution, traffic, etc. On the other hand, Laryngeal cancer remains the dominant cancer in the head and neck. It is related to environmental factors such as air pollution as well as a smoking habit. Laryngeal cancer is commonly found in the advanced stage. The study aims to know the factors associated with laryngeal cancer occurrence and the characteristics of the diseases. A retrospective study was conducted through medical records exploration in WNT General Hospital from January 1st, 2018 to December 31st, 2019. All patients in this period will be included as a subject. All risk factors and characteristics of patients were recorded, then analyzed descriptively. Nineteenth patients fulfilled the criteria in the study period. Most of them were male, low socio-economic status, and has a smoking habit. The symptom when the patients seeking medical advice were mainly hoarseness and hoarseness with dyspnea. Predominantly, the patients came in late-stage. Furthermore, the most treatment given was the combination of surgery, chemotherapy, and radiotherapy. The main histopathology result was undifferentiated squamous cell carcinoma.

1. Introduction

Laryngeal carcinoma is a malignancy arising from the larynx epithelium. This carcinoma remains a problem in the otolaryngology head and neck surgery department. This problem occurs due to the treatment should be done integrated by several specialists. According to Bray et al (2018), laryngeal carcinoma is the second most head and neck cancer globally, with an incidence of 1% of all cancer [1]. In Indonesia, although laryngeal cancer was not the highest carcinoma in the head and neck, however, it remains in fourth-place. In Padang, West Sumatera reported 100 new cases or 0,7% among 1,439 head and neck cancer [2].

The incidence of laryngeal carcinoma was correlated with smoking habit and alcohol consumption. An epidemiologic study has drawn this significant relationship between smoking, alcohol consumption, and radioactive exposure with laryngeal carcinoma. The other factors that may also increase the risk of laryngeal carcinoma were gastroesophageal reflux disease, infection by Human Papilloma Virus type 16 and 18, wood dust, polycyclic hydrocarbon, and asbestos exposure. However, the exact etiology has not been established yet [3]. The study by Permitasari et al (2019) found that smokers were susceptible to laryngeal cancer and their family as a secondhand smoker.[4] The male usually was more susceptible to laryngeal carcinoma with the male and female ratio 7:1 [1] Adeel et al (2019) found that 93,5% of the laryngeal carcinoma patients were male [5].

Indonesia is one of the developing countries in the world. Furthermore, this country is included in the G20 organization [6]. West Nusa Tenggara (WNT) is one of the provinces in the middle part of Indonesia which is now growing as a development state. The state's development may be accompanied by several aspects such as industry, transportation, as well as socio-economic status, including smoking habits and alcohol consumption. This development will lead to several consequences such as air pollution, traffic, etc.



In West Nusa Tenggara province, several interesting medical cases were found and have been managed. One of the patient characteristics was difficulties in referring them to the other province due to several reasons, such as economic and culture [7].

According to this province's status, it may be correlated with the occurrence of certain diseases including laryngeal carcinoma. To know the epidemiology of the disease in the developing state, it is important to report this study.

10
2. Materials and methods

A retrospective study was conducted through medical records exploration in West Nusa Tenggara General Hospital for 2 years from January 1st, 2018 to December 31st, 2019. Ethical clearance was approved by the ethical committee, Faculty of Medicine, Mataram University. Total sampling was used in this study. However, if the data is incomplete, the subject will be excluded.

The general characteristics such as gender, age, socio-economic status, and the risk factor will be documented. The gender will be divided into male and female. The age will be divided into groups less than 40, 40-50, 51-60, 61-70, and more than 70 years old. The socioeconomic state defined as the class type where the subject took care in the hospital, for instance, if the subject stays at class 3 then categorized as poor; if the subject at class 2 then categorized as fair; and if the subject at class 1 or VIP then categorized as good. Risk factors were documented through the medical records note regarding the smoking habit, alcohol consumption, or the other specific risk factor.

The clinical characteristics such as complaint when the subject coming to the hospital, histopathology type, stage, and the treatment given to the subject were recorded. The staging was established based on the AJCC 2018. All data that have been collected are then analyzed descriptively.

1
3. Results and discussion

During the study period, there was 19 patient with laryngeal cancer, most of them were male, and the age between 51-70 years old. The general characteristic of the subject in this study is described in table 1.

12 **Table 1.** Characteristic of patients with laryngeal cancer.

General characteristics	Male N (%)	Female N (%)	Total N (%)
Gender	17 (89)	2 (11)	19 (100)
Age group (years)			
Less than 40	0 (0)	0 (0)	0 (0)
40-50	3 (16)	0 (0)	3 (16)
51-60	6 (32)	1 (5)	7 (37)
61-70	6 (32)	1 (5)	7 (37)
More than 70	2 (11)	0 (0)	2 (11)
Socioeconomic state			
Good	3 (16)	0 (0)	3 (16)
Fair	6 (32)	1 (5)	7 (37)
Poor	8 (42)	1 (5)	9 (47)
Risk Factor			
Smoking	14 (74)	0 (0)	14 (74)
Alcohol	1 (5)	0 (0)	1 (5)
Furniture worker	2 (11)	0 (0)	2 (11)
Unidentified	0 (0)	2 (11)	2 (11)

Among the 19 subjects, clinically most of them came to the hospital due to hoarseness and dyspnea (47%). The most histopathology type was undifferentiated squamous cell carcinoma and was usually found in the late stage. Due to the subject found in the late stage, the most treatment done was laryngectomy combined with chemotherapy and radiotherapy. The detailed data on clinical characteristics were shown in Table 2.

Table 2. Clinical characteristics of patients with laryngeal cancer.

Clinical characteristics		Number	Percentage
Complaint	Hoarseness	4	21
	Dyspnea	3	16
	Hoarseness and dyspnea	9	47
	Mass on the middle part of the neck	2	10
	Dysphagia	1	5
Histopathology	Undifferentiated Squamous cell carcinoma	14	74
	Well-differentiated squamous cell carcinoma	3	16
	Adenoid cystic carcinoma	2	10
	Stage I	0	0
Staging	Stage II	1	5
	Stage III	8	42
	Stage IV	10	53
	Laryngectomy	2	10
Treatment	Laryngectomy + Chemotherapy	6	32
	Laryngectomy + Chemotherapy + Radiotherapy	8	42
	Others	3	16

In West Nusa Tenggara, laryngectomy has been started since 2016, chemotherapy since the end of 2016. Meanwhile, radiotherapy is the last mode of therapy against cancer, has been started in WNT since the end of 2018. [8] Based on those facts, most of the patients with laryngeal cancer who were found at the beginning of 2018 have not been radiated yet. There were some obstacles to referred the patients outside this province, some of them were socio-economic factors, the waiting period for starting the radiotherapy in the other province was quite long, away from the family member, and a limited number of the family member who can accompany them.[7] Finally, most of them were waiting for the operation of the radiotherapy units in the West Nusa Tenggara General Hospital.

According to a nationwide survey in Denmark in 2014, the incidence of laryngeal cancer was 2,3/100,000 population, however, the incidence was lower than in 1980. During the study period, they found 8,748 patients with laryngeal cancer.[9] In Indonesia, the morbidity of laryngeal cancer was 1,619 among 20,555 from the most six prevalence carcinoma. The laryngeal cancer morbidity stands as the 6th prevalent cancer in Indonesia.[4] This study found 19 cases of laryngeal cancer, mostly found in cancer age, poor socioeconomic status, and related to smoking history. Meanwhile, the authors found an interesting finding where there were 2 patients exposed to wood dust and 2 female cases who didn't have a history of smoking or wood dust exposure. However, the last 2 cases may be related to secondhand smoking.[4]

The histopathologic pattern in this study was similar to the study by Ciolofan et al (2017) who found mostly poorly differentiated squamous cell carcinoma.[10] In his book, Boyle et al (2020) stated that 95% of the larynx's primary tumor was squamous cell carcinoma.[11]

Hoarseness is the main complaint in the early stage of laryngeal cancer, especially on glottic cancer. The relationship between hoarseness and laryngeal cancer is depending on the site of the tumor. If the mass growth on the true vocal cord, the first symptoms would be hoarseness. On the other hand, if the mass growth in supraglottis or infraglottis, the hoarseness will occur in the advance stage. In this case, dyspnea may occur first; furthermore, it referred to the upper airway obstruction if the symptom occurs. Hoarseness and dyspnea can occur at a similar time when the vocal cord and airway obstruction are involved.[3] In this study, hoarseness with dyspnea was the most complaint, followed by independent hoarseness and dyspnea. This result indicated that the case was mostly in the advanced stage.

According to this study, 95% of patient with laryngeal cancer was coming in stage III and IV. This result was higher than the previous report by Cahyadi et al (2016) and Adeel et al (2018) who found

66% and 61% consecutively.[2], [5] There were several possibilities why the patient in WNT was late to seek medical advice. One of them was the lack of knowledge of the disease symptom. These handicaps affect the low awareness of laryngeal cancer treatment. The other possibility was the low economic status which is reflected by the high number of patients with low economic status in this study.

The treatment choices would be a combination of surgery, chemotherapy, and radiotherapy in advanced stages.[3] Since the majority of the case in this study was the advanced stage, it is logical that the most therapy given was the combination of laryngectomy, chemotherapy, and radiotherapy. However, the authors found 3 cases that did not follow the standard therapy. One patient refused to follow the medical treatment and the others only followed chemotherapy on the treatment. There were several reasons for the rejection of medical advice such as they were afraid of the effect of laryngectomy, chemotherapy, or radiotherapy. The other reason, according to the family view, for instance, the patient was too old for receiving any surgery, chemotherapy, and/or radiotherapy.

This research has several limitations such as the design with a cross-sectional, limited number of patients, and relatively new radiotherapy utilization in our hospital. Furthermore, prospective and advanced research should be addressed to draw the epidemiology of laryngeal cancer in detail.

4. Conclusion

The environmental risk factors should be considered for laryngeal cancer besides classic factors such as gender, low socioeconomic status, and smoking history. The patient was usually found in a late-stage; furthermore, the symptom was a combination of hoarseness and dyspnea. The most treatment done was the combination of laryngectomy, chemotherapy, and radiotherapy.

References

- [1] Bray F, Ferlay J, Soerjomataram I, Siegel R L, Torre L A and Jemal A 2018 *CA. Cancer J. Clin.* **68** 394–424
- [2] Cahyadi I, Permana A D, Dewi Y A and Aroeman N A 2016 *Tunas Med. J. Kedokt. Kesehat.* **3** 1–4
- [3] Steuer C E, El-Deiry M, Parks J R, Higgins K A and Saba N F 2017 *CA. Cancer J. Clin.* **67** 31–50
- [4] Permitasari N P A L, Satibi S and Kristina S A 2018 *Asian Pacific J. Cancer Prev.* **19** 1951–5
- [5] Adeel M, Faisal M, Rashid A, Usman S, Khaleeq U, Abbas T, Rehman A, Malik K, Hussain R and Jamshed A 2018 *Cureus* **10** 1–20
- [6] Basri M C, Breuer L E, Chan-Lau J A, Curristine T, Das M, Mooij R de, Guajardo J, Isnawangsih A, Jin H, Kang H, Kinda T, Loukoianova E, Lu Y, Miyajima K, Nazara S, Nozaki M, Shin J, Toro J, Ugazio G and Allmen U E von 2018 ed L E Breuer, J Guajardo and T Kinda (Washington: International Monetary Fund)
- [7] Kadriyan H, Sulaksana M A, Yudhanto D, Ayu I G, Aryani T, Yuliani E A, Ardianti N E, Suprayogi M and Djannah F 2020 *J. Med. Case Rep.* **14** 1–6
- [8] Kadriyan H 2019 (Mataram: Mataram University Press)
- [9] Nahavandipour A, Jakobsen K K, Grønhøj C, Hebbelstrup Jensen D, Kim Schmidt Karnov K, Klitmøller Agander T, Specht L and von Buchwald C 2019 *Acta Oncol. (Madr)*. **58** 977–82
- [10] Ciolofan M S, Vlăescu A N, Mogoantă C-A, Ioniță E, Ioniță I, Căpitănescu A-N, Mitroi M-R and Anghelina F 2017 *Curr. Heal. Sci. J.* **43** 367–75
- [11] Boyle J, Busam K, Carlson D, Cohen M, Cordeiro P, Cracchiolo J, Dayan J, Francis J, Ganly I, Ghossein R, Shah J P, Singh B, Patel S G and Wong R J 2020 *Jatin Shah's Head and Neck Surgery and Oncology* ed J P Shah, B Singh, S G Patel and R J Wong (Printed in China: Elsevier) pp 365–440

Hamsu Kadriyan 14 Prosiding Inter

ORIGINALITY REPORT

14%

SIMILARITY INDEX

12%

INTERNET SOURCES

11%

PUBLICATIONS

%

STUDENT PAPERS

PRIMARY SOURCES

1	I A Lestarini, H Kadriyan, M A Sulaksana, M S A P Firdausy, I L Harahap, T P Karuniawati, N Wedayani. "The trend of hemoglobin levels in nasopharyngeal cancer patients treated with chemotherapy in low human development index region in Indonesia", IOP Conference Series: Earth and Environmental Science, 2021 Publication	4%
2	docplayer.net Internet Source	2%
3	download.atlantis-press.com Internet Source	2%
4	repository.unhas.ac.id Internet Source	2%
5	P I Nandana, L R Adipura, and H Rasyid. "The effect of tamsulosin and dutasteride combination drug therapy on prostate volume in patients with benign prostatic hyperplasia", IOP Conference Series: Earth and Environmental Science, 2021 Publication	1%

6	pertambangan.fst.uinjkt.ac.id Internet Source	1 %
7	www.freepatentsonline.com Internet Source	1 %
8	Mishra, Shiraz I, Roberta W Scherer, Claire Snyder, Paula M Geigle, Debra R Berlanstein, Ozlem Topaloglu, and Shiraz I Mishra. "Exercise interventions on health-related quality of life for people with cancer during active treatment", Cochrane Database of Systematic Reviews Reviews, 2012. Publication	<1 %
9	brieflands.com Internet Source	<1 %
10	www.discoveryjournals.org Internet Source	<1 %
11	Mohammad Shah Kamal, Rubina Farzana, Md Hafiz Ehsanul Hoque, Md Guljar Hossain. "Distribution of Laryngopharyngeal Malignancy in the North-East Part of Bangladesh: Fiberoptic Laryngoscopic (FOL) Study of 300 Cases", Journal of Bangladesh College of Physicians and Surgeons, 2022 Publication	<1 %
12	www.nutriweb.org.my Internet Source	<1 %

13

Zhao Ding, Deshun Yu, Hefeng Li, Yueming Ding. "Effects of marital status on overall and cancer-specific survival in laryngeal cancer patients: a population-based study", Scientific Reports, 2021

Publication

<1 %

Exclude quotes On

Exclude matches Off

Exclude bibliography On