

CLINICOPATHOLOGICAL CHARACTERISTICS OF NASOPHARYNGEAL CARCINOMA AT CENTRAL GENERAL HOSPITAL PROF. DR. I.G.N.G. NGOERAH DENPASAR IN 2021-2022

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ABSTRACT

Nasopharyngeal carcinoma (NPC) epidemiologically occupies the fourth position as the highest number of malignancy cases in Bali, Indonesia. The most common histological type of NPC cases are non-keratinizing squamous cell carcinoma (NKSCC) undifferentiated subtype. This research aims to know the clinicopathological aspect of nasopharyngeal carcinoma at Prof. Dr. I.G.N.G Ngoerah General Hospital Denpasar in 2021-2022 regarding the distribution of age range, gender, education, occupation, clinical stage, histological type, as well as the results of anamnesis. The research design is a descriptive study of 70 cases of NPC. Samples were collected retrospectively from secondary data using a total sampling technique through a cross-sectional study, samples were obtained from medical record data and hospital management system of Prof. Dr. I.G.N.G Ngoerah General Hospital Denpasar. In this study, the most cases of NPC were found in the range of 51-60 years old (32.9%), male sex (65.7%), high school education status (48.6%), private employee employment (32.9%), anamnesis results of a lump in the neck (77.1%), stage IVA (40%), and with the histological type of NKSCC undifferentiated subtype (90%). Men have twice the risk of suffering from NPC compared to women, most cases have complained of a lump in the neck and other symptoms such as nasal congestion, tinnitus, headaches. The most common histological type found is the NKSCC undifferentiated subtype, which mostly occurs in advanced stages of an IVA.

Keywords : Clinicopathology, NPC, Nasopharynx

INTRODUCTION

NPC is a form of malignancy located behind the nose at the very top of the throat (nasopharynx). This tumor rarely shows specific symptoms, and in some cases it does not even cause pain, so most patients' diagnoses are at an advanced stage, which leads to a poor prognosis.¹ NPC tends to be radiosensitive, and five year survival rate has been reported as high as 50%, even for patients with advanced stages.²

In 2020, the estimated number of new cases of cancer globally throughout the world was reported to be around 17.1 million cases, where the number of NPC incidents reached 133,354 estimated cases based on an age-standardized rate (ASR) of 1.5 per 100,000 people. The mortality rate due to NPC reported in 2020 reached 80,008 deaths, this is equivalent to 0.88% of total deaths due to cancer.³

The number of NPC cases in Indonesia is quite high, reaching 19,943 cases and the mortality rate due to NPC reaches 13,399 deaths.⁴ Based on research results regarding the number of KNF cases in Bali in the 2017-2019 period,

KNF is in fourth place as the highest number of malignant cases after breast cancer, cervical cancer and skin cancer. The estimated number of NPC incidents is quite high, namely 306 cases (4.9%) of the total of the five major malignancy cases in Bali (breast cancer, cervical cancer, skin cancer, NPC and rectal cancer).⁵

This study aims to determine the clinicopathological characteristics of NPC patients at the Prof. Dr. I.G.N.G. Ngoerah General Hospital as a referral hospital in Bali.

MATERIALS AND METHODS

The design of this research is a descriptive study with a cross-sectional study design. Data collection was carried out retrospectively. The population in this study was all NPC patients who came for treatment at Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar in 2021-2022.

The data studied included distribution of age, gender, education, occupation, clinical stage, histological type, and anamnesis results. Data were obtained from Medical Record data and Hospital Management System of Prof. Dr. I.G.N.G Ngoerah General Hospital Denpasar.

Guide for determining the results of anamnesis based on data that has been collected using the ENT disease guideline in Indonesia, the results of anamnesis are divided into four symptoms which include symptoms in the nose, ears, lumps in the neck, eye and nerve symptoms.⁶

Final data will be presented in percentages described with narratives or tables. Researchers have received ethical clearance from the Ethics Commission of the Faculty of Medicine, Udayana University No: 231/UN14.2.2.VII.14/LT/2023 and this research has also obtained research permission from Prof. Dr. I.G.N.G. Ngoerah general hospital No: DP.04.03/D.XVII.2.2.2/14633/2023.

RESULT

Based on 70 research subjects who were NPC patients at Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar based on age characteristics, it was found that the age range with the most cases was 51-60 years, amounting to 23 cases (32.9%) and followed by age 41-50 years, amounting to 22 cases (31.4%), while the lowest cases were occurred in the age range ≤ 30 , there were 2 cases (2.9%). More detailed research results can be reviewed in **Table 1**.

Table 1. Distribution of NPC based on age

Age Range (years)	Frequency	%
≤ 30	2	2.9
31-40	9	12.9
41-50	22	31.4
51-60	23	32.9
61-70	8	11.4
71-80	6	8.6

In this study, 70 NPC patients at Prof. Dr. I.G.N.G. Ngoerah general hospital Denpasar based on gender characteristics, data was obtained that 24 cases (34.3%) were female NPC patients, while 46 cases (65.7%) were male NPC patients. Thus, the characteristics of patients based on gender who is most often diagnosed with NPC are male patients. **Table 2** shows a more detailed presentation of data regarding clinicopathological aspects based on the gender of NPC patients Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar in 2021-2022

Table 2. Distribution of NPC based on gender

Gender	Frequency	%
Female	24	34.3
Male	46	65.7

Based on the characteristics of educational status, it was found that the most cases occurred in subjects with a high school education level, 34 cases were found (48.6%), while the fewest cases were patients with a bachelor's degree, 2 cases were found (2.9%). **Table 3** shows a more detailed presentation of data regarding clinicopathological aspects based on the educational status of NPC patients Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar in 2021-2022.

Table 3. Distribution of NPC based on educational status

Education	Frequency	%
Unschooling	9	12.9
Primary school	21	30
Middle school	4	5.7
High school	34	48.6
Graduation (Bachelor)	2	2.9

Based on the characteristics of the type of work, it was found that the most cases occurred in patients with private sector employment, 23 cases (32.9%), while the fewest cases were students, 1 case (1.4%). Thus, the characteristics of patients based on occupational type who is most often diagnosed with NPC are private employees. Presentation of more detailed data related to the results of the type of occupation of NPC patients can be seen in the table below.

Table 4. Distribution of NPC based on occupation

Occupation	Frequency	%
Unemployed	2	2.9
Housewife	9	12.9
Seller	3	4.3
Private employees	23	32.9
Student	1	1.4
Retired	2	2.9
Farmer	14	20
Self-employed	8	11.4
Others	8	11.4

Based on the clinical stage, the most data was found in clinical stage IVA with a total of 28 cases (40%) and followed by clinical stage IVB as the second most clinical stage was found in 26 cases (37.1%), while the least data was found in clinical stage I was found 1 cases (1.4%). Thus, the characteristics of patients based on clinical stage who is most often diagnosed with NPC are patient with

advance stage (IVA and IVB). The results of this study can be reviewed further in **Table 5** which shows clinicopathological data based on the clinical stage.

Table 5. Distribution of NPC based on clinical stage

Clinical Stage	Frequency	%
I	1	1.4
II	3	4.3
III	12	17.1
IVA	28	40
IVB	26	37.1

Based on the characteristics of the histological type, the most NPC cases were found with the NKSCC undifferentiated subtype histology with 63 cases (90%) and the fewest NPC cases with the KSCC histology type with 1 case (1.4%), there were no cases of basaloid type NPC (BSCC). In addition, data was obtained on the results of the histology type with another type, namely malignant round cell tumor, in 4 cases (5.7%). The research results are related to the histological type of patients diagnosed with NPC at Prof. Hospital. Dr. I.G.N.G. Ngoerah in the 2021-2022 period can be seen in the following table.

Table 6. Distribution of NPC based on histology type

Histology Type	Frequency	%
NKSCC differentiated subtype	2	2.9
NKSCC undifferentiated subtype	63	90
KSCC	1	1.4
BSCC	0	0
Others (<i>Malignant round cell tumor</i>)	4	5.7

Based on the characteristics of the anamnesis results it was found that data on patients with complaints of nasal symptoms was found in 37 cases (52.9%), then patients with ear symptoms occurred in 29 cases (41.4%), then patients who complained of neck symptoms in the form of lumps were found in 54 cases (77.1%), and patients with eye and nerve symptoms occurred in 39 cases (55.7%).

Presentation of more detailed data related to the anamnesis results of NPC patients can be seen in the figure below.

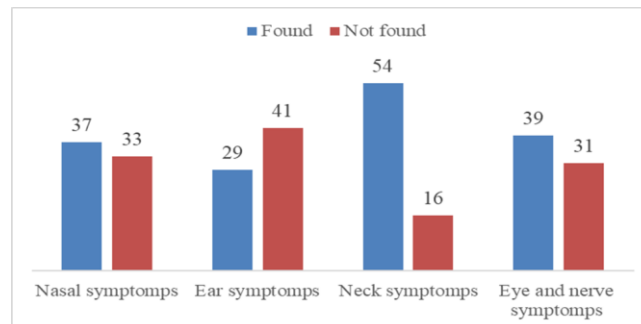


Figure 1. Results of anamnesis data based on the four classifications of symptoms in the ENT disease guideline in Indonesia

DISCUSSION

In this study, the most NPC cases were found in the 51-60-year age group, followed by the 41-50-year age group. The findings of this research are in line with research conducted at Dr. Soetomo Surabaya in 2017-2018, the researchers wrote down the data on NPC patients based on age characteristics, finding the most cases in the 51-60 year age group as well as research conducted at the Muhammadiyah Hospital Palembang in 2017-2018, it was reported that the largest age group was 41-60 years old and data from research conducted in North Morocco by Reffai et al in 2021 found that the 40-54 year age group was the largest age group for NPC patients and followed by the 55-69 year age group.⁷⁻⁹

In research on NPC patients at Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar in the 2021-2022 period based on gender characteristics, it was found that the majority of cases occurred in male patients. The results of this research are in line with a research conducted at the West Nusa Tenggara Hospital in 2018 which found that there were more male patients compared to female patients as well as research conducted at General Hospital Dr. Hassan Sadikin Bandung in 2010-2015, the majority of cases were found to be male.^{10,11} In addition. Population-based case-control study conducted in Southern China in the period 2010-2014, found that the highest number of NPC cases occurred in male patients female gender.¹² According to research conducted by Saraswati et al, the study stated that the highest prevalence of NPC cases occurs in men because they are more frequently exposed to cigarette smoke, especially men who are active smokers.¹³

Based on the characteristics of educational status, the most cases were found to be NPC patients with a high school education level. These research findings were also found in research conducted by Utomo and Romdhoni at General Hospital Dr. Soetomo Surabaya in 2017-2018 and research conducted by Shoffi at the Central Naval Hospital (RSPAL) Dr. Ramelan Surabaya in 2020, the most NPC cases reported occurred in patients with high school education.^{7,14}

In this study, it was found that most cases occurred in patients who worked as private employees. The findings of this research were also reported in several other studies such as research conducted in RSPAL Dr. Ramelan Surabaya in 2020, research conducted in dr. Kariadi General Hospital Semarang in 2020 also reported that the most cases of NPC based on employment status occurred in patients whose work was as a private employee.^{14,15} Apart from that, research conducted in Southern China in the 2010-2014 period also reported a similar thing, which was that most cases occurred in patients who worked as employees, especially blue-collar workers.¹²

The most cases based on the clinical stage characteristics of subjects in the form of NPC patients were found in patients with stage IVA and followed by stage IVB. Research with similar results was also found in research conducted at General Hospital Dr. Soetomo Surabaya in 2017-2018 as well as research which was carried out at Dr. M. Djamil General Hospital Padang in 2010-2013 reported that the most cases occurred in stages IVA and IVB and other research that is in line with these findings is research conducted at Pelamonia Hospital Makassar in 2020-2022 which was the most cases occurred in patients with stage IVA.^{7,16,17}

In this study, most cases were found in patients with the NKSCC undifferentiated subtype. Another study that had results similar to these findings was research conducted at the Mangusada Bali General Hospital in 2019 where all NPC cases were the NKSCC undifferentiated subtype, and research conducted in Dr. M. Djamil General Hospital Padang in 2010-2013 also reported that the most cases occurred in patients with the histology type NKSCC undifferentiated subtype.^{16,18} Apart from that, research conducted in Northern Morocco also reported that there were 124 cases (96.12%) with the histopathology type NKSCC undifferentiated subtype being the most cases.⁹

The most cases found were patients with complaints of lumps in the neck. Another study that obtained similar results was research conducted at Sanglah General Hospital Denpasar in 2014 by Suta et al, Dr. M. Djamil General Hospital Padang in 2010-2013 and research conducted by Utomo and Romdhoni in 2023 at General Hospital Dr. Soetomo Surabaya in 2017-2018, reported that the most cases occurred in patients who complained of lumps in the neck.^{7,16,19} NPC usually originates from the Rosenmüller fossa or posterolateral pharyngeal recess and will metastasize to the paranasal space along the perinurial space

of the trigeminal nerve, indicating unilateral cervical lymphadenopathy.²⁰ Apart from that, the book *Clinical presentation of nasopharyngeal carcinoma* written by Adham et al., in 2020 states that NPC patients most often complain of a lump in the neck (cervical lymphadenopathy).²¹

CONCLUSIONS AND SUGGESTIONS

Based on research results from 70 research samples, namely patients who were newly diagnosed with NPC at Prof. Hospital. Dr. I.G.N.G. In the 2021-2022 period, it was found that the most incidents occurred in the age range 51-60 years, with male gender, high school education level, profession as a private employee, and based on the results of the patient history, the most cases were found with symptoms of a lump in the neck, the clinical stage of the patient Most occur in stage IVA, and the most common histological type is a NKSCC undifferentiated subtype.

Further research is needed to review the correlation between each variable on the incidence of NPC.

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