


Characteristics Of Nasopharyngeal Carcinoma Patients In Indonesia

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Article Info	ABSTRACT
Keywords: Age, Gender, nasopharyngeal carcinoma .	Nasopharyngeal carcinoma is a malignancy in the head and neck region that is always in the top five among other body part malignancies along with cervical cancer, breast cancer, lymph malignant tumors and skin cancer. The etiology of nasopharyngeal cancer is multifactorial including Epstein barr virus (EBV) infection, environmental such as exposure to carcinogens (formaldehyde), wood dust and firewood smoke, smoking, and diet. Other risk factors include age, gender, occupation and socioeconomic status. This study aims to determine the relationship between age and gender on the incidence of nasopharyngeal carcinoma. The method applied included an in-depth literature review relevant to the incidence of nasopharyngeal carcinoma. The identification process was conducted through online databases such as Google Scholar and Scopus. The results of the analysis showed that ages above 40 years had a higher risk of developing nasopharyngeal carcinoma. In addition, males were also found to be more susceptible to the disease than females. This study underscores the importance of understanding and treating nasopharyngeal carcinoma (NPC) by strengthening early detection programs aimed specifically at at-risk populations, especially individuals over 40 years old and lazy, who are shown to be at higher risk. In addition, it is important to improve public education on the risk factors for NPC, including early symptoms to look out for, so that people are more proactive in getting health checks.
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INTRODUCTION

Carcinoma is the dominant form of cancer that occurs in the nasopharynx. The nasopharynx is the upper part of the throat located behind the nose . Nasopharyngeal cancer usually appears in the *Fossa Rosenmuller* in the throat which is a transition zone of *cuboidal epithelium* to *squamous epithelium* . This cancer is one of the cancers that tends to occur around 60 cases of head and neck cancer, followed by a number of other cancers . The cause of nasopharyngeal carcinoma is not yet known for certain, but from several studies, the role of *Epstein was found. Barr Virus* (EBV) as the main etiological factor and not the only risk factor for nasopharyngeal carcinoma because many other factors influence the onset of this disease . EBV is closely associated with malignancies arising from the nasopharynx, namely

nasopharyngeal carcinoma, which is the most common nasopharyngeal epithelial malignancy, and NK/T *cell lymphoma*. EBV-positive nasopharyngeal carcinoma and NK/T *cell lymphoma* show a significant increase in response to treatment and better patient survival compared to EBV-negative malignancies.^{1, 2, 3}

Although, nasopharyngeal cancer is commonly associated with *Epstein Bar virus*, this virus does not transform nasopharyngeal *epithelial cells* into *proliferative cells*, although *Epstein Bar virus* can repopulate primary B cells. Throat cancer begins with latent *Epstein Bar virus infection* and resolves through genetic changes that can be seen in the precancerous nasopharyngeal epithelium. Risk factors for nasopharyngeal carcinoma include age, sex, dietary habits, environment, geographic location, race, genetics, occupation, lifestyle, culture, and socioeconomics.^{2, 4}

According to *the World Health Organization* (WHO), histologically there are 3 types of nasopharyngeal cancer. Type I is keratinizing squamous cell carcinoma (SCC), Type II is nonkeratinizing carcinoma, and Type III is undifferentiated carcinoma. Type II and Type III are usually found in endemic areas, and Type I is usually found in nonendemic areas. Globally, in 2000 there were approximately 65,000 new cases and 38,000 deaths caused by nasopharyngeal carcinoma in the world. In some countries the incidence of nasopharyngeal carcinoma is only 0.6% of all malignancies. In America the incidence of nasopharyngeal carcinoma is 1-2 cases per 100,000 men and 0.4 cases per 100,000 women. However, in other countries and certain ethnic groups, such as China, Southeast Asia, North Africa, this malignant tumor is often found. Nasopharyngeal carcinoma in Indonesia is among the top ten malignancies and in the field of ENT it is ranked first in malignancies in the head and neck area.^{2, 5}

The incidence of nasopharyngeal carcinoma in Indonesia is 4.7 new cases per 100,000 population per year and the ratio between men and women with nasopharyngeal carcinoma is 2.4 in Indonesia based on data from the Ministry of Health of the Republic of Indonesia in 2015. This high incidence can be caused by the high risk factors for nasopharyngeal carcinoma in Indonesia, namely high consumption of salted fish and preserved foods, exposure in the workplace to carcinogenic substances such as formaldehyde, wood dust and wood smoke.^{2, 5}

In 2018, GLOBOCAN (*Global Cancer Observatory*) estimated that new cases of nasopharyngeal carcinoma in the world reached 129,000 and the death rate was 73,000 cases. Then, in 2020, there was an increase in new cases of nasopharyngeal carcinoma compared to 2018, which was 133,354 cases with a death rate reaching 80,000 cases and the region with the highest incidence of nasopharyngeal carcinoma was Asia. In relation to race, nasopharyngeal carcinoma is most commonly found in the Mongoloid race, therefore, the incidence is often found in residents of South China, Indonesia, Singapore, Malaysia, Vietnam, Hong Kong, and Thailand.⁶

Nasopharyngeal carcinoma is more common in men than women with a ratio of 2-3 men to 1 woman, and is often found in productive age, namely 40-60 years, this malignant tumor does not have specific symptoms, often without symptoms, so this causes delays in diagnosis and therapy. More than >70% of cases of the first symptom of nasopharyngeal

carcinoma are *lymphadenopathy cervical*, which is a metastasis of nasopharyngeal carcinoma . In accordance with previous studies that relate patient age to the incidence of nasopharyngeal carcinoma. The incidence of nasopharyngeal carcinoma in low-risk populations increases with age while in high-risk populations it peaks at age 55-59 years and then decreases with age .^{5,7}

Meanwhile, the incidence of KNF in children varies between 1-5% of all cancer cases in children. Men are more than women, which is 3: 1 and peaks at the age of 50-59 years . In accordance with previous research, the characteristics of nasopharyngeal cancer patients at Dr. Pirngadi Medan General Hospital in 2018, showed that male patients (69.1%) were higher than female patients . Symptoms of nasopharyngeal carcinoma can be divided into 4 groups, namely nasopharyngeal symptoms themselves, ear symptoms, eye and nerve symptoms and metastasis or symptoms in the neck. Nasopharyngeal symptoms can be mild epistaxis or nasal congestion and runny nose , when *ulceration* occurs in the tumor, *epistaxis* will occur . For this reason, the nasopharynx must be examined carefully if necessary with a *nasopharyngoscope* , because often there are no symptoms while the tumor has grown or the tumor is not visible because it is still below *mucosa* . While symptoms in the ear arise due to the expansion or compression of the mass around the eustachian tube , so that fluid will appear in the middle ear, *unilateral conductive deafness* , *otalgia* , and *tinnitus* . *Serous otitis media* was found in around 41% of 237 patients diagnosed with NPC. Tumor growth can spread to the cranial cavity through *the foramen lacerum* affecting the *anterior* and *posterior groups so that cranial* nerve abnormalities will occur (survival).^{8,9,10,11}

Prevention of nasopharyngeal cancer is still a fairly difficult problem because its etiology is still uncertain, in addition, the location of the nasopharynx is quite hidden so it is difficult to detect it, therefore information about this disease is needed because its nature is often known too late . In principle, the treatment of nasopharyngeal carcinoma consists of three types, namely radiation, chemotherapy and surgery. In the early stages, the therapy of choice is radiation. A combination of radiation and chemotherapy is given in cases of locally advanced nasopharyngeal carcinoma. While surgery is only performed in certain cases such as *recurrent cases* where radiation is not possible.^{12,13}

Early stages of nasopharyngeal carcinoma are difficult to diagnose clinically because of its hidden location in the nasopharynx and because the initial symptoms resemble upper respiratory tract infections, such as rhinitis or sinusitis. 1 Patients usually come at an advanced stage when there is a lump in the neck, hearing loss, tinnitus , progressive nasal obstruction/epistaxis, headache, post nasal drip mixed with blood, nerve disorders, or distant metastasis . Management of nasopharyngeal carcinoma is currently still a problem, this is because the etiology is still uncertain, early symptoms are not typical and the location of the nasopharynx is hidden, so that diagnosis is often late. In addition , NPC treatment takes a long time and high costs. NPC patients who have not metastasized far are given *radiotherapy* (RT), as a single therapy that is expected to improve the quality of life and prolong the survival of patients, because NPC is a malignancy that can be cured with RT.^{4,10}

Diagnosis of NPC can be supported by *nasoendoscopy* , *computed tomography* (CT) imaging, and radiography. *Tomography* (CT) Scan or *Magnetic Resonance Imaging* (MRI). In

terms of differentiating tumors from surrounding soft tissues and identifying tumor metastasis to lymph nodes, MRI provides better imaging than CT Scan, while CT Scan is better at knowing tumor destruction to the base of the skull. Histopathological examination of nasopharyngeal biopsies is the gold standard for establishing a diagnosis. In addition to nasopharyngeal biopsies, other methods of taking material for histological examination are washing, suction, and nasopharyngeal brushing. Basically, NPC therapy modalities include radiotherapy, chemotherapy, surgery or a combination. For early stages, radiotherapy alone is performed, but if it is already in an advanced stage, chemotherapy or a combination is needed. The prognosis of NPC depends on several factors, namely *the aggressiveness* of tumor cells, which is assessed based on tumor expansion, spread to the neck lymph nodes, and distant *metastasis*, as well as patient characteristics, namely age, race, and gender. Histopathological classification of NPC based on *World Health Organization Organization* (WHO) also influences the prognosis and therapeutic interventions in NPC patients.¹¹

However, this treatment also has a bad impact on the patient's immune system, such as decreased appetite, rapid decline in immune system, psychological disorders, and even the risk of death. Overall, the 5-year survival rate is 45%. The prognosis is worsened by several factors such as more advanced stages, age over 40 years, enlarged neck glands, paralysis of the brain nerves and damage to the skull bones.¹⁰

Above problems, the importance of research on the characteristics of nasopharyngeal carcinoma patients cannot be ignored, considering the high incidence of this cancer among men, especially in the age group over 40 years. By understanding the demographic factors that contribute to the risk of developing nasopharyngeal carcinoma, this study is expected to provide deeper insights for the development of more effective prevention, early detection, and management strategies for at-risk populations. It will also contribute to increasing public and health care provider awareness of the importance of special attention to certain age and gender groups in the context of public health.

METHOD STUDY

The research conducted is Literature Reviews which is method study secondary. This method involving identification, evaluation, and interpretation results research that has been related to the topic being researched. Literature review will give a comprehensive description about the connection between variables studied. The initial stage of searching for journal articles by determining the focus of the study, namely the characteristics of nasopharyngeal carcinoma patients in Indonesia. Using academic databases, scientific journals, and other trusted sources with keywords such as "nasopharyngeal carcinoma", "age", and "gender". This search focused on publications within a certain time range (2014-2024) to ensure the relevance and timeliness of the data. After that, selecting sources using inclusion and exclusion criteria to select relevant articles. Inclusion criteria can include articles that discuss the characteristics of nasopharyngeal carcinoma patients in Indonesia, studies published in peer-reviewed journals and publications within a specified time range. While exclusion criteria include articles that are not available in full-text form and studies that are not relevant to the topic.

After collecting literature, researchers will analyze the data by re-describing information from literature sources, making conclusions based on analysis of various studies, looking for similarities and differences between existing studies and this study and identifying deficiencies in previous studies. Finally, compile a literature report. a clearly structured review , including introduction, methodology, analysis results, discussion, and conclusion. Through the literature method This review is expected to provide a better understanding of the characteristics of nasopharyngeal carcinoma patients in Indonesia . The results of this study are expected to contribute to the development of science and become a reference for further research in the health sector.

RESULTS AND DISCUSSION

Results Analysis

No	Authors and Journal Sources	Year	Title Article	Number of Samples	Research Design	Results
1.	Emda Zein, Sister Fitria, Nindya Shinta Rumastika , Pipiet Wulandari	2020	Relationship of Risk Factors with the Incidence of Nasopharyngeal Carcinoma (NPC) at RSD dr. Soebandi Period January 2017- March 2019	40	Case Control	Consumption of salted fish, consumption of grilled fish/grilled meat, genetics and age have a significant relationship with the incidence of nasopharyngeal carcinoma at RSD dr. Soebandi and the most influential relationship with the incidence of nasopharyngeal carcinoma is consumption of salted fish.
2.	Bryan Melvern, Vega Karlowee , Meira Dewi Kusuma Astuti	2022	Relationship between Age and Gender with Histopathological Type of Nasopharyngeal Carcinoma	The subjects in this study included nasopharyngeal carcinoma patients diagnosed by the Anatomical Pathology Department of Dr. Kariadi Central General Hospital (RSUP Dr. Kariadi)	Cross sectional	The results of the study showed that the incidence of nasopharyngeal carcinoma at Dr. Kariadi Hospital from 2017 to 2019 was in the 55-59 age group with a total of 33 patients and decreased thereafter. Men are two to three times more at risk of

No	Authors and Journal Sources	Year	Title Article	Number of Samples	Research Design	Results
				from January 1, 2017-December 31, 2019. Data were obtained from medical records.		developing nasopharyngeal carcinoma than women.
3.	Kehui Chen , Tingling Shi , Silang Mo , Tingting Liu, Yuanyuan Zhao Li Zhang , Shen Zhao	2024	Clinical features and prognostic factors of nasopharyngeal carcinoma with brain metastases	Patients diagnosed with nasopharyngeal carcinoma with brain metastasis and treated at Sun Yat -sen University Cancer Center between July 2000 and July 2023	Design retrospective	The picture of nasopharyngeal cancer sufferers is most common in men and on average increases at the age of 40-65 years. The largest group of brain metastases in nasopharyngeal carcinoma by performing Local therapeutic measures after brain metastases can significantly improve the prognosis of these patients, especially when radiotherapy is applied .
4.	Moh. Adrezki M. Yusuf, Jane Mary Carolina Rintjap, Ade Rahmy Sujuthi , Sri Wartati , Rachmat Faisal Syamsu	2022	Characteristics of Nasopharyngeal Carcinoma Patients at Pelamonia Hospital Makassar in 2020-2022	40	Observational research	Results shows that there is an uneven distribution of the number of nasopharyngeal carcinoma patients at Pelamonia Hospital Makassar . The dominant data are patients who came in 2022 and the least in 2020. Age >51 years is the most diagnosed with nasopharyngeal carcinoma at Pelamonia Hospital Makassar in 2020-2022. The female

No	Authors and Journal Sources	Year	Title Article	Number of Samples	Research Design	Results
5	The Day of Purwanto	2015	Relationship Between Age and Gender with the Incidence of Nasopharyngeal Carcinoma at DR. H. Abdul Moeloek Regional Hospital, Lampung Province in 2013-2014	87	Cross sectional	gender is the most compared to men who were diagnosed with nasopharyngeal carcinoma at Pelamonia Hospital Makassar in 2020-2022. The incidence of Nasopharyngeal Carcinoma at DR. H. Abdul Moeloek Hospital , Lampung Province in 2013-2014 was 81 people (93.1%). Most of the age of Nasopharyngeal Carcinoma patients at DR. H. Abdul Moeloek Hospital , Lampung Province in 2013-2014 was \geq 40 years, 70 people (80.5%) and most of the gender of Nasopharyngeal Carcinoma patients at DR. H. Abdul Moeloek Hospital , Lampung Province in 2013-2014 were male, 61 people (70.1%).
6	Nurhaida Utami, Harianto, Winarto	2022	nasopharyngeal carcinoma patients at the ENT polyclinic of Arifin Achmad Regional Hospital, Riau Province from 2016-2020	KNF patients taken from the medical records at Arifin Achmad Regional Hospital, Riau Province from 2016-2020.	Retrospective descriptive	The distribution of NPC based on age is most commonly found in the age range of 46-55 years with a percentage of 32.2% and the fewest cases are in the age range of 0-5 years and 5-12 years with a percentage of 0.6% and 0.6% and the distribution of NPC

No	Authors and Journal Sources	Year	Title Article	Number of Samples	Research Design	Results
						based on gender is most commonly found in males with a percentage of 68.9% compared to females with a percentage of 31.1%.
7	Audi Wahyu Utomo , Achmad Chusnu Romdhoni	2023	Characteristics of Patients with Nasopharyngeal Carcinoma at Dr. Soetomo General Academic Hospital, Surabaya (Characteristics of Patients with Nasopharyngeal Carcinoma at Dr. Soetomo Hospital, Surabaya)	262 patients with a diagnosis of nasopharyngeal carcinoma (NPC) who met the inclusion and exclusion criteria	Design descriptive retrospective with data collection from patient medical records	The majority of patients were male (73.28%), with the main complaint being a lump in the neck (49.61%) and most of them came with an advanced stage (stage IV).
8	Faradina Amelia	2021	Relationship of Risk Factors with Nasopharyngeal Carcinoma Incidence at Dr. Mohammad Hoesin General Hospital Palembang January-December 2020	Samples were taken using the total sampling method in accordance with the inclusion criteria.	Cross sectional	In this study, it was shown that there was a relationship between age and the incidence of nasopharyngeal carcinoma (p=0.038) and there was a significant relationship between gender and the incidence of nasopharyngeal carcinoma (p=0.014).
9	Yuliana Londong	2016	Factors Associated With Nasopharyngeal Carcinoma At Dr Wahidin Sudirohusudo General Hospital	70	Cross sectional	The results of the study showed that there was a significant relationship between work (0.003), environment (0.001), age (0.001), socio-

No	Authors and Journal Sources	Year	Title Article	Number of Samples	Research Design	Results
			Makassar			economic (0.027) and lifestyle (0.000) with the incidence of KNF.
10	The story of the 2018 film "The Legend of the 2018 Film" by Shofi Faiza, Sukri Rahman, Aswiyanti Asri	2016	Clinical and Pathological Characteristics of Nasopharyngeal Carcinoma in the ENT-KL Department of Dr. M. Djamil Padang General Hospital	The research sample was data from all patients with a final diagnosis of nasopharyngeal carcinoma who were treated at the ENT-KL Ward of Dr. M. Djamil Padang General Hospital from June 2010 to July 2013.	Descriptive study	The results of the study showed that the ratio of male and female sufferers was 1.2: 1, with an age distribution ranging from 17 to 75 years. The most sufferers were found in the age group of 41 to 65 years.

The results of the literature analysis revealed that nasopharyngeal carcinoma is a type of cancer that is more common in men than in women, with an incidence ratio reaching 1.38 times higher in men. Research shows that the incidence of nasopharyngeal carcinoma increases significantly after the age of 30, with a peak occurring in the age group of 40 to 60 years. Data shows that around 60.7% of patients diagnosed with nasopharyngeal carcinoma are in the risk age category above 40 years. Furthermore, studies in various locations show that the age groups 40 to 49 years and 50 to 59 years have the highest incidence, reflecting that the risk of developing nasopharyngeal carcinoma increases with age. This may be due to a decrease in the immune system and other risk factors such as *Epstein-Barr virus* (EBV) infection which is more common in individuals over that age.

Discussion

Based on data from *the Global Cancer Observatory* (Globocan) in 2018, there were 129,079 new cases worldwide or 0.7% of all cancer cases with 72,987 deaths due to nasopharyngeal carcinoma each year. Research on nasopharyngeal cancer in Medan also stated that the largest age group for nasopharyngeal cancer cases was 50 to 59 years, amounting to 29.1%. The youngest sufferer was 21 years old and the oldest was 77 years old with an average age of 48.8 years. Likewise, based on various studies on the age distribution of nasopharyngeal cancer, the risk of nasopharyngeal cancer increases on average at the age of 40-65 years and decreases after the age of 71-80 due to the decreasing population at this age.^{14,9}

DNA changes or mutations occur with age (aging) and these changes in DNA are the main cause of cancer. DNA damage can be induced by exogenous and endogenous agents. Endogenous chemical genotoxic agents can be products of metabolism such as *reactive oxygen species* (ROS) or by spontaneous chemical reactions such as *hydrolysis*. DNA damage has essentially twofold consequences. Cells that survive *misrepair* or replication of

damaged DNA can permanently change the genetic code in the form of mutations or chromosomal aberrations, both of which can increase the risk of cancer. DNA damage can also disrupt the vital process of transcription or inhibit the induction of the replication process, which can trigger cell death and cause the aging process .¹⁵

In humans, it is estimated that the average body cell undergoes 10 mutations during life, with each gene having a 10-fold chance of spontaneous mutation. If each mutation could change a normal cell into a cancer, then we would not be able to function as living beings. Epidemiological studies show that the possibility of changing into cancer is not constant, but increases with age .¹⁰

Younger patients have a better survival rate than older patients, because increasing age >40 years will cause immunity to decrease. This causes the *Epstein virus Barr virus* (EBV) is more susceptible to infecting individuals >40 years, *Epstein virus infection Barr virus* (EBV) will stimulate cell division in the Nasopharynx, especially in *the Fossa Abnormal* and uncontrolled *Rosenmuller* . The incidence of cancer increases with age. There are several possibilities that can be explained, namely the cumulative risk of carcinogenic material damage along with increasing age, a long latency interval between exposure to carcinogenic agents to clinical manifestations as a result of tumor occurrence. ^{9, 12}

In Semarang, the number of nasopharyngeal carcinoma patients is also highest in the 50-54 year age group. Approaching the results of previous studies, the highest number of nasopharyngeal carcinoma patients in this study was in the 55-59 year age group with 33 patients and decreased thereafter. These results follow the global trend of nasopharyngeal carcinoma in several countries with high incidence . Until now, NPC is still a health problem that deserves attention. The atypical early symptoms and the hidden location of the nasopharynx cause early diagnosis of this disease to be often late. NPC patients who come to health service centers are often in poor general condition and most even come with advanced stages .⁷

The incidence of nasopharyngeal carcinoma in men is consistently higher every year compared to women. The male to female ratio is 2.24:1, in line with the trend of nasopharyngeal carcinoma worldwide with men being two to three times more likely to experience nasopharyngeal carcinoma than women . This is in accordance with many studies that have reported that nasopharyngeal carcinoma is more common in men than women .^{7, 5}

This cancer is three times more common in men than in women, the incidence of nasopharyngeal cancer is quite high, namely 25 to 30 per 100,000 for the male group and 15 to 20 per 100,000 individuals for the female group in endemic areas . A survey by the Indonesian Ministry of Health in 1991-1999 reported the incidence of NPC in Indonesia of 4.7 cases per 100,000 population per year. Research at the Dr. Hasan Sadikin Hospital in Bandung reported that of the 426 NPC patients in the 2010-2014 period, there were 62.2% cases in men. In Yogyakarta, NPC is relatively higher, reaching 5.7 per 100,000 population. From the research results of the Department of ENT-KL Health Sciences, Hasanuddin University, Makassar for the period 2011-2019, 286 patients were found to be suffering from KNF, where the distribution of male gender was 194 (68%) cases and female was 92 cases (32%) .¹³

Men have a greater risk of experiencing NPC because men have more risky behaviors for experiencing NPC such as smoking. NPC spreads locally through direct extension, regionally through surrounding nodules, and through the bloodstream. The higher percentage in men is likely due to differences in lifestyle, hormonal activity, differences in diet and work that cause men to have more frequent contact with carcinogens that cause NPC, one of which is working outside the home which allows for a lot of exposure to smoke, dust and chemicals that have the potential to cause uncontrolled cell *proliferation*.⁹

From the results of Melani and Sofyan's research at Adam Malik Hospital Medan, the most KNF sufferers were found in the male gender. The results of the study also found that work has an influence on the occurrence of KNF, especially in self-employed workers. The results of the latest research also show the role of the *Ebstein virus Barr* in the development of the disease. In addition, there is a history of frequent contact with substances that are considered carcinogenic such as *Benzopyrene*, *Benzoathracene* (a type of *hydrocarbon* in coal), chemical gas, industrial smoke, wood smoke so that inflammation occurs in the nasopharyngeal area which causes the nasopharyngeal mucosa to become more susceptible to environmental carcinogens.¹⁰

This result indicates that factor age play a role important in increase risk, with higher prevalence high in the group age certain, especially at certain ages mature until middle-aged. In addition, the type gender also becomes dominant factor, where men found own risk more tall compared to women. Findings This in line with studies previously linked hormonal, genetic and exposure factors environment as factor greater risk Lots experienced by the group man.

With existence relationship found this is important for stakeholders interests in the field health For increase awareness public to risk carcinoma nasopharynx, especially in the group age and type more sex vulnerable. Detection program early and education related factor risks, such as habit life, pattern eating, and exposure to material carcinogenic, necessary prioritized For press number incident disease This. Research more further is also needed For understand mechanism specifics behind connection this, so that effort prevention and treatment can done in a way more effective.

CONCLUSION

Based on literature review on Characteristics of nasopharyngeal carcinoma patients in Indonesia show that existence significant relationship between age group and gender. Based on various analyzed literature, prevalence disease This tend increased in the group age mature until middle aged, with the peak occurs at the age of 40-60 years. Age factor This influenced by accumulation exposure to agent carcinogenic, such as Epstein-Barr virus (EBV) infection, pollution air, and habits undereating Healthy in term long. In addition, the aging process affects system immunity is also one of the reason increasing risk disease this is at the age certain. Gender is also found own role important in incident carcinoma nasopharynx. Data from various literature show that man own greater risk tall compared to women. This is possibility big influenced by hormonal factors, lifestyle live, and exposure environment. Men are more often exposed factor risk like consumption tobacco and alcohol, which are known

can trigger development carcinoma nasopharynx . While that , factor genetics certain more dominant in men is also considered contribute to difference This . Research This confirm that type sex No only as variable demographics , but also as indicator significant risk . of nasopharyngeal carcinoma patients include : age and type sex have a significant relationship in incident carcinoma nasopharynx also shows consistent pattern across multiple literature . In men adults and middle age, risk carcinoma nasopharynx reach number highest compared to group others . This is show that interaction between factor biological and environmental in groups age and type sex certain hold role important in pathogenesis disease this . Review literature also mentions existence regional and ethnic differences that can influence prevalence , which adds to complexity connection between variables this . These results emphasize the need for prevention efforts that focus on vulnerable age groups and men, especially through early detection programs and health education. In addition, further research is needed to better understand the biological and environmental mechanisms that influence this relationship. These results are expected to form the basis for the development of more targeted public health policies to reduce the burden of nasopharyngeal carcinoma.

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