Nasopharyngeal Carcinoma at Otolaryngology Department Prof. R.D. Kandou Hospital Manado Indonesia

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Abstract Nasopharyngeal carcinoma (NPC) is a malignant tumor in head and neck region are derived from nasopharyngeal epithelium. NPC has the highest incidence rates in southern China. The incidence of malignancy in head and neck region as a whole has increased. Based on data obtained in the otolaryngology department in Prof. Kandou hospital Manado Indonesia, NPC is the highest ranks of malignancy in otolaryngology cancer. The etiology of NPC is complex, involving multiple factors including genetic susceptibility, Epstein Barr viral (EBV), environmental and dietary factors. Symptoms of NPC can be divided into 4 groups, nasopharyngeal, ear, eye and neurological and neck symptoms. Diagnosis of NPC is by biopsy and make histopathologic examination Radiotherapy is the primary treatment. This research was conducted using descriptive retrospective method of data collection, from medical records and processed by means arranged in the form of tables and graphs.

Keywords: nasopharyngeal carcinoma, symptoms and sign, histopathologic

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1. Introduction

Nasopharyngeal carcinoma (NPC) is a malignant tumor in head and neck region are derived from nasopharyngeal epithelium. The location of this cancer is at Rossemmler fold behind the eustachian tube at nasopharynx [1,2].

Incidence of head and neck cancer is increase, including nasopharyngeal carcinoma. The patients who came with the sign of nasopharyngeal carcinoma in ear nose and throat must have further examination. [3,4] Incidence in Japan and India is 0,5 – 1/100.000 population in a year, it is the same as in Europe and North America. Higher incidence has found in North China, Mediteranian, North Africa and Southeast Asia, 5-9/100.000 population. The highest incidence is in South China, is 10-150/100.000 population in a year [5,6,7,8].

Incidence of Nasopharyngeal carcinoma in the several region in Indonesia is not really different. [1] Otolaryngology department, medicine faculty of Indonesia University, found more than 100 cases of NPC in a year. Otolaryngology department medicine faculty of Sam Ratulangi University has found 110 cases of NPC in three years [5,7].

Etiology of NPC is Epstein Barr (EB) viral infection. All NPC patients found increasing of EB viral, higher than the normal people. EB viral it's not the only factor but there were other risk factor like geography, race, sex,

genetic, occupation, environment, way of life, culture, social economy and infection [1,3].

Histopathologic classification of NPC are type 1 keratinizing squamous cell carcinoma, type 2 non keratinizing squamous cell carcinoma and type 3 undifferentiated carcinoma [9].

Symptoms and sign of NPC divided into 4 groups. Nasopharyngeal symptoms are epistaxis and blocking nose. [1,7] Ear symptoms are tinnitus, otalgia, hearing decrease and otitis media. This symptom occurred because tumor has infiltrate the Eustachian tube region. [1,3] Eye and neurologic symptoms are occurred if the tumor infiltrate the lacerum and jugulare foramen and infiltrate the III, IV, V, VI, IX, X, XI, XII. [1] The last is metastatic symptom or neck tumor. Usually patients came to the hospital because of this symptoms [1,7].

Diagnosed of NPC is by doing radiologic or endoscopy examination, but the gold standard diagnosed is biopsy too examine the tissue and histopathologic. [1,10] Therapy of NPC are radiotherapy, chemotherapy and both. Therapy adjuvant is neck dissection, tetracycline, interferon, anti viral and vaccine [1,11].

2. Material and Methods

This research was conducted using descriptive retrospective method of data collection. Data were collected from medical records and processed by means arranged in the

form of tables and graphs. Data is presented as frequency distribution of years when patients came to outpatient department, sex, age, occupation, symptoms, sign and histopathological of NPC.

3. Results

Patients that diagnosed as nasopharyngeal carcinoma at otolaryngology department Prof. Kandou hospital period of 2009 January – 2011 December are 52 patients. We found 12 patients in 2009 (0,29 %), 15 patients in 2010 (0,25 %) and 25 patients in 2011 (0,47 %). The highest incidence is in 2011.

Table 1. NPC patients in 2009 - 2011

Year	Patients	NPC Patients	%
2009	4.031	12	0,29
2010	5.914	15	0,25
2011	5.297	25	0,47
Total	15.242	52	0,34

The result of this research is male NPC Patients is more than female. Male NPC patients is more than female in every year, 8 in 2009, 10 in 2010 and 14 in 2011. Female NPC patients is 4 in 2009, 5 in 2010 and 11 in 2011. The percentage of male and female NPC patients is 62 % : 38 %, almost 2:1.

Table 2. Frequency of NPC patients according to sex

Sex	2009	2010	2011	n	%
Male	8	10	14	32	62
Female	4	5	11	20	38
Total	12	15	25	52	100

Distribution of age in NPC patients shows that NPC not found in all ages, only from the age over 18 years old. The highest distribution is found in age 41-65, 32 patients in 3 years (61,5 %). Youngest patient is 18 years old and the oldest patients is 76 years old.

Table 3. NPC in distribution of ages

Years	2009	2010	2011	n	%
0-5	-	-	-	-	0
6-11	-	-	-	-	0
12-17	-	-	-	-	0
18-40	2	4	8	14	27
41-65	9	7	16	32	61,5
≥ 65	1	4	1	6	11,5
Total	12	15	25	52	100

The results from the occupation of NPC patients, the highest is farmer 21 % and housewife 19 %. The least is driver 2 % and teacher 4 %

Table 4. Distribution of occupation in NPC

Occupation	2009	2010	2011	n	%
Farmer	6	2	3	11	21
Retired	1	2	3	6	12
Housewife	4	1	5	10	19
Driver	1	-	-	1	2
Employee	-	1	6	7	13
Private	-	3	3	6	12
Teacher	-	2	-	2	4
Jobless	-	4	5	9	17
Total	12	15	25	52	100

Symptoms and sign in NPC that found in result of this research was neck tumor (50 %), epistaxis (23 %) and hearing decrease (19 %).

Table 5. NPC Sign and Symptoms

Sign and Symptoms	N	%
Epistaxis	12	23
Blocking Nose	9	17
Hearing decrease	10	19
Otalgia	4	8
Neck Tumor	26	50
Headache	5	10
Pain on swallowing	5	10
Diplopia	2	4
Decrease of sight	3	6

The result of this research there was 52 NPC patients, and just 5 patients who have taken biopsy and have histopatologic result. Histopatologic result is non keratinizing squamous cell carcinoma (8 %).

Table 6. NPC Histopathologic Result

Histopathologic Result	N	%
Keratinized squamous cell carcinoma	1	2
Non keratinized squamous cell carcinoma	4	8
No histopathologic result	47	90
Total	52	100

4. Discussion

The result of this research has found there were 52 NPC patients (0,34 %) in 3 years (2009-2011). NPC patients increased at year 2011 and was the highest incidence that we found (0,46 %). Its the same as data from reference that found Incidence of head and neck cancer is increase including nasopharyngeal carcinoma [3,4].

This research found that incidence of male is higher than female, almost 2:1. Male is 62 % and female is 38 %. Some references found data the same as this result, male NPC patients is more than female patients. The risk factors of NPC is smooking, but smooking is not the only risk factor that has a role in NPC but many risk factors can make the NPC occurred. [3,10,12] Percentage of NPC is higher in male due to different occupation and way of life. Male's contact with carcinogenic is higher than female. Cigarette and alcohol is one of the etiology we found in NPC [13].

The result of NPC in patients year, we found this result is likely from research in Padang that found 32,74 % in age 40-49 and the results of Prof Kandou hospital before in period 2001-2003 is 22,86 % in age 50-59 years old [14,15].

There is a relation between EB viral with the highest NPC occurred in age 41-65, because of the infection of this viral begins in children phase and occurred in mild symptoms. After infection usually Epstein Barr viral will live in the patients body. The accumulation of the viral in body is the major role in NPC etiology. So the older the people, the more viral in the body, that make they have the highest risk factor to NPC. NPC is not occurred only from one risk factors but many risk factors because cancer caused by multiple factorial. [3,16,17] Epstein Barr viral infection have latent phase about 20-25 years to maintain

the viral in infected nasopharyngeal cells without symptoms. The infection makes cancer cells occurred. It makes normal cells transformed into cancer cells due to spontaneous mutation or because carcinogenic mutation [18,19].

Beside infection of EB viral, there is carcinogenic material as another risk factor. First contact to carcinogenic until it become cancer needs longer time for induction, its 15-30 years. EB viral infection has provided target cells in nasopharynx that susceptible to environment carcinogenic shelf and genetic mutation. Oncogen and tumor suppressed gen have a role in transformation of normal cells to cancer cells. This process happend after latent infection, so it makes nasopharyngeal carcinoma occurred mostly in year of 40 until 60 years old [18,19].

The other risk factors from NPC are occupation and the way of life. This disease is have relation with the low salary occupation, patient with low economic and the habit of cooking with some flavor, that maybe have relation with the housewife profession. [1,10] House with no good ventilation and full of smoke in China, Indonesia and Kenya, are risk factors for nasopharyngeal carcinoma. In Hongkong the incense smoke have a role in nasopharyngeal carcinoma [20].

Symptoms and signs of NPC are more clearly in late stage, when occure the neck tumor. Neck tumor occurred because of metastatic of NPC in lymph nodes. Neck tumor is the most found sign because of there was many of lymph nodes in neck region. It's the reason patients come to the hospital [11].

Histopathologic result is the same as data from WHO that shows that 95 % histopatologic result is non differentiated carcinoma, a part of keratinizing carcinoma. [12] Not all NPC patients have histopatologic result because they refuse to do biopsy because social economic problems. The diagnostic of the NPC patients is from the symptoms, sign and endoscopy.

5. Conclusion

The result of this research is there were 52 NPC patients in 3 years, and it increased. NPC is found more in male than female. The age of 50-59 is the most highest frequency of NPC and there was no patients under 18 years old. The highest frequency of occupation is farmer. The symptoms and sign that have higher frequency is neck tumor, epistaxis and hearing deacrease. Non keratinized squamous cell carcinoma is the most histopathologic result that found in this research.

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