



Characteristics of Non-Hodgkin's Lymphoma Head Of The Neck In Chemotherapy I At General Hospital Dr. Soetomo Surabaya

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Abstract: Background: Non-Hodgkin's lymphoma (NHL) of the head of the neck is the proliferation of malignant neoplasms of the head and neck of the immune system and manifests into nodal and extranodal lymphomas. **Objective :** to report head and neck non-Hodgkin's lymphoma patients who received chemotherapy I in the Lotus Surgery Inpatient ENT-KL RSUD Dr. Soetomo. **Methods:** the data recorded included gender, age, tumor location, biopsy results, immunohistochemistry, chemotherapy regimens, side effects of chemotherapy. **Result :** The ratio of men and women is 1:1. The most tumor locations in tonsils, 8 patients (50.00%). Location in the nasal cavity, sinonasal and palate as many as 2 patients (12.50%). The location at least is in the hypopharynx and parotid, 1 patient (6.25%). The results of the biopsy showed a diagnosis of non-Hodgkin lymphoma in 10 patients (62.50%), suspicion of malignant round cell DD non-Hodgkin lymphoma differentiated carcinoma in 6 patients (37.50%). The use of chemotherapy regimens for patients with non-Hodgkin's lymphoma in the form of CHOP in 15 patients (93.75%) and the use of R-CHOP (Rituximab-CHOP) in 1 patient (6.25%). **Conclusion:** The number of male patients is the same as that of women with the highest age group being 41-70 years. The most common location for the tumor is the tonsils. Most of the tumor biopsy results showed non-Hodgkin's lymphoma without a differential diagnosis. Positive results of immunohistochemical examination were performed on NHL with the most differential diagnosis using cluster of differentiation 20. Chemotherapy regimens used were cyclophosphamide, doxorubicin, vincristine and prednisone with partial chemotherapy response. The most side effect of chemotherapy is a decrease in serum electrolytes.

Keywords: Non-Hodgkin's Lymphoma Head, Neck, Chemotherapy.

I. INTRODUCTION

Non-Hodgkin's lymphoma (NHL) of the head of the neck is the proliferation of malignant neoplasms of the head and neck of the immune system and manifests into nodal and extranodal lymphomas. The incidence of head and neck NHL has increased in some countries by up to 35% in the last 20 years. Survival increased from 30% to 50.8% over the last decade with an increase in 5-year survival rates. Head and neck non-Hodgkin lymphoma is the fifth most common malignancy in the United States and 65,540 newly diagnosed cases were reported in 2007. 12,294 new cases were reported in the UK in 2009 and 16,230 new cases in Germany. Non-Hodgkin's lymphoma in Indonesia ranks 6 [1,2]. Handling of patients with NHL involves many experts depending on the stage and histopathological examination. Histopathological examination is needed to differentiate from squamous cell carcinoma of the head and neck. Histological examination determines the classification, stage, therapy and prognosis of the patient. An increased risk of malignancy occurs in patients aged less than 45 years and a history of smoking [3].

Most non-Hodgkin's lymphomas respond well to chemotherapy and radiotherapy. Chemotherapy is given in the form of a combination of drugs on a regular basis so that a good response is obtained. Treatment of patients with Diffuse Large B Cell Lymphoma (DLBCL) is rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP). Side effects of chemotherapy vary from mild to severe, this is determined by the dose and chemotherapy regimen [3,4,5].

The purpose of this paper is to report head and neck non-Hodgkin's lymphoma patients who received chemotherapy I in the Lotus Surgery Inpatient ENT-KL RSUD Dr. Soetomo during the period 1 January to 31 December 2017 according to gender, age, tumor location, biopsy results before immunohistochemistry, immunohistochemical results, chemotherapy regimen, chemotherapy side effects and chemotherapy response.

II. Research Method

Population and Sample

This study was conducted retrospectively using secondary data from medical records of patients with non-Hodgkin's lymphoma in the Lotus Surgery Inpatient ENT-KL RSUD Dr. Soetomo Surabaya for the period January 1 to December 31 2017. The sources of patient data were taken from the 2017 chemotherapy register book and 2017 patient medical records. The data recorded included gender, age, tumor location, biopsy results, immunohistochemistry, chemotherapy regimens, side effects of chemotherapy and chemotherapy response.

III. RESULTS AND DISCUSSION

3.1 Result in this study

The results of the medical record data showed that 16 patients with non-Hodgkin's lymphoma received chemotherapy for the period January 1 to December 31, 2017.

Table 1: Patient Characteristics

Variabel		n (%)
Patients' age	21-30	1 (6.25)
	31-40	2 (12.50)
	41-50	4 (25.00)
	51-60	4 (25.00)
	61-70	4 (25.00)
	71-80	1 (6.25)
Gender		
	Male	8 (50.00)
	Female	8 (50.00)

The male and female sex groups were equally compared, namely male patients as many as 8 patients (50%) and women as many as 8 patients (50%). The ratio of men and women is 1:1. The age of the patients in this study ranged from 26 to 75 years with a mean of 47.43 years. The age group with the highest number is the range of 41-50 years, 51-60 years and 61-70 years, as many as 4 patients (25.00%). The age group with the least number is in the range of 21-30 years and 71-80 years, as many as 1 patient (6.25%).

Table 2. Tumor location, Biopsy And Immunohistokimia characteristics in patients

Variabel		n (%)
Tumor Location	Tonsil	8 (50.00)
	Cavum nasi	2 (12.50)
	Sinonasal	2 (12.50)
	Palatum	2 (12.50)
	Hipofaring	1 (6.25)
	Parotis	1 (6.25)
Biopsy	Non Hodgkin lymphoma	10 (62.50)
	Malignant round cell DD	6 (37.50)
Imunohistokimia	CD 20	6 (37.50)
	Cd 45	6 (37.50)

The most tumor locations were in the tonsils, namely 8 patients (50.00%). Location in the nasal cavity, sinonasal and palate as many as 2 patients (12.50%). The location at least is in the hypopharynx and parotid, namely 1 patient (6.25%). The results of the biopsy showed a diagnosis of non-Hodgkin lymphoma in 10 patients (62.50%) and with suspicion of malignant round cell DD non-Hodgkin lymphoma/poorly differentiated carcinoma in 6 patients (37.50%). Immunohistochemical examination was performed on 10 patients, namely 4 patients with non-Hodgkin lymphoma biopsy results and 6 patients with malignant round cell biopsy results DD non-Hodgkin lymphoma/poorly differentiated carcinoma. Immunohistochemistry results showed positive results of CD 20 examination as many as 8 patients (80%) and positive examination of CD 45 as many as 2 patients (20.00%).

Table 3. Regimen dan respon kemoterapi in Patients

Variabel		n (%)
Regimen	CHOP	15 (93.75)
	R-CHOP	1 (6.25)
Respon	Lengkap	16 (100)
	Sebagian	
	Tidak Respon	
	Progresif	

The use of chemotherapy regimens for patients with non-Hodgkin's lymphoma in the form of CHOP (Cyclophosphamide, Doxorubicin, Vincristine and Prednisone) in 15 patients (93.75%) and the use of R-CHOP (Rituximab-CHOP) in 1 patient (6.25%). The response to chemotherapy is complete, partial, unresponsive and progressive. In this study, a partial response was obtained in all patients (100.00%).

3.2 Discussion

The results of the study obtained a ratio of men and women of 1:1. The research of Phan J., et al stated that the ratio of men and women was 1.15:1, and the research of Wang J., et al stated that the number of sufferers was more dominantly male. Research by Walter C., et al stated that patients with non-Hodgkin's lymphoma were 55% women and 45% men. The cause of no difference in sex distribution was not reported in several studies [3,6,7]. Patients in this study had a range of 26–75 years with a mean of 47.43 years and the most were in the age group of 41–50 years, 51–60 years and 61–70 years (25%). Research by Wang J., et

al stated that the largest group was at the age of 50-70 years. Some of the etiologies of non-Hodgkin's lymphoma are increasing proportion of old age, immunosuppression, genetics, viruses, medication conditions, pesticides. Age is not only a risk factor but also affects therapy and patient survival rates [7].

The head and neck region is the second most common location for extranodal lymphoma after the gastrointestinal tract and represents about 5% of malignant head and neck tumors. The most common location for extranodal non-Hodgkin's lymphoma in the head and neck region is the Waldeyer ring. Non-Hodgkin's lymphoma involving the Waldeyer ring has increased in Asia. This study reported that the most tumor locations were in the tonsils, namely 8 patients (50.00%). These results are similar to the study of Chart J.V., et al which stated that the most common location of LNH was in the Waldeyer ring and the most in the tonsils. Research by Wang J., et al reported the most locations of NHL in the tonsils [7,8,9].

One of the diagnosis of non-Hodgkin's lymphoma is based on examination of pathological tissue from enlarged lymph nodes or extra lymphatic tissue. Tissue collection using a biopsy of the pathological area. Most of the biopsy results were non-Hodgkin lymphoma (62.50%). The results of malignant round cell biopsy of DD NHL/poorly differentiated carcinoma were 6 patients (37.50%). Research Sharma M., et al reported the number of new patients with non-Hodgkin's lymphoma in 1 year was 61% of malignant proliferative neoplasms. Differential diagnosis can be distinguished by the characteristic histologic pattern, immunohistochemistry and microscopic appearance. The characteristics of malignant round cells are round and undifferentiated cells. Malignant round cells include Ewing's sarcoma (EWS), peripheral neuroectodermal tumors, rhabdosarcoma, non-Hodgkin's lymphoma, retinoblastoma, neuroblastoma, hepatoblastoma and nephroblastoma [10,11,12].

Non-Hodgkin's lymphoma is diagnosed by microscopic examination of anatomic pathology. Immunohistochemical examination was applied in 3 conditions, namely (1) finding the phenotype of the abnormal population based on cell morphology examination, (2) knowing further characteristics of the abnormal population based on flow cytometry examination, and (3) protecting reactive tissue so that it can detect the presence or absence of hidden abnormal populations. Immunohistochemical examination is used to differentiate between lymphoma and undifferentiated or anaplastic neoplasms or benign lymphoid infiltrates. Examination of immunological markers to see the expression of antigens on the cell surface is very important to determine the type of cell (B cell or T cell) and the level of development. Immunohistochemical examinations to diagnose non-Hodgkin's lymphoma include CD2, CD3, CD20, CD45. This study reported on the immunohistochemistry of CD 20 which showed a positive result as much as 80% and CD 45 immunohistochemistry as much as 20%. The Sheikpour study reported that immunohistochemical examinations that showed the most positive results were CD 20 and CD 45 [12,13].

The study of Sharma M., et al reported that all cases with a differential diagnosis of non-Hodgkin's lymphoma had 100% concordance between microscopic examination and immunohistochemistry. One of the known antigens on the surface of lymphoma is CD 20. Cluster of differentiation 20 is a specific protein that found only in B cells homogeneously expressed in more than 90% of B cell lymphomas with a density of 50,000-200000 molecules per lymphoma cell. This antigen is not present in stem cells, plasma cells or non-hematopoietic tissues. Cluster of differentiation 20 plays an important role in calcium influx across the

plasma membrane to maintain intracellular calcium concentrations that function in B cell activation. Expression of CD 45 during B cell ontogeny varies [12,13].

The choice of NNH therapy depends on the type of histologic subtype and stage. Histology (1) low grade at stage I, II was given radiotherapy, while stage III, IV treatment options were observation, cyclophosphamide, vincristine, prednisone (CVP), chlorambucil and rituximab, (2) intermediate stage I, II was given R- CHOP 3 times and radiotherapy while stage III, IV were given R-CHOP 6 times or other combination chemotherapy (3) high grade stages I-IV were given intensive combination chemotherapy. The most important method of therapy in NHL is chemotherapy. Research by Phan J., et al reported that R-CHOP chemotherapy regimen was given to 84% of patients with NHL. Patients who only received CHOP therapy had a recurrence rate of 25%-50%. Radiotherapy also has a specific role in the treatment of NHL. The accuracy of the combination of chemotherapy and radiotherapy also determines the prognosis of this disease. This combination can get a maximum response and side effects that are still acceptable to the patient. Chemotherapy can have side effects, depending on the type, size and duration of drug administration. Chemotherapy is aimed at stopping the growth of malignant cells that divide rapidly, but also affects healthy cells that are also dividing rapidly, such as hair cells, bone marrow, cells on the surface of the mouth and intestines [3,5,14]. Side effects of chemotherapy vary from mild to severe depending on the dose and regimen. The effects of chemotherapy on normal mitotic cells such as blood cells, gastrointestinal tract cells, skin, hair, and reproductive organs can cause side effects, including nausea, vomiting, stomatitis, diarrhea, electrolyte disturbances, anemia, leukopenia, thrombocytopenia, liver disorders and kidney [5,15].

Patients with malignancy after chemotherapy generally experience abnormalities in serum electrolytes, including hyponatremia, hypokalemia, hypercalcemia, hypophosphatemia and hypercalcemia. The cause of this electrolyte disturbance may be due to the underlying malignancy etiology and indicates a paraneoplastic process and poor prognosis. Some patients with LNHL who received chemotherapy resulted in hyponatremia so that adequate hydration was needed during chemotherapy administration. Hypokalemia is the second most common electrolyte disturbance. One of the causes of hypokalemia is the influence of the cyclophosphamide chemotherapy regimen which causes tubular damage and potassium loss from the digestive tract and kidneys. The study of Bruining DM., et al reported severe hyponatremia in patients with high doses of cyclophosphamide (30-40 mg/kg) and moderate doses (20-30 mg/kg). Severe hyponatremia with low-dose cyclophosphamide (.15 mg/kg) was observed in a few cases [15,16].

Nausea and vomiting are one of the most common side effects of chemotherapy. Nausea and vomiting are included in early side effects because they often occur within one to twenty-four hours after chemotherapy, although they can also occur in more than twenty-four hours. Chemotherapy induced nausea and vomiting occurs because chemotherapy drugs can affect the function of neuroanatomy, neurotransmitters and receptors in the vomiting center (VC). These structures include neurons in the medulla oblongata, chemoreceptor trigger zone (CTZ) in the area postrema at the base of the fourth ventricle of the brain, vagus nerve afferents and enterochromaffin cells in the gastrointestinal tract [5].

Acknowledgment

The authors thanks to Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo Academic Medical Center, Surabaya

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