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COMPARISON OF CLINICAL RESPONSE BETWEEN SIX AND EIGHT CYCLES OF CHOP CHEMOTHERAPY IN NON HODGKIN LYMPHOMA

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ABSTRACT

Background: Non Hodgkin lymphoma is one of the ten most common cancers in the developed world, it is one of the commonest malignancies in Sudan. There are a lot of treatment modalities used. This study is conducted to compare clinical response to six and eight cycles of CHOP chemotherapy among adult Sudanese patients with Non-Hodgkin lymphoma. **Methods:** Sixty five patients above 18 years of age with Non-Hodgkin lymphoma, attending oncology hospital from June to August 2016, treated with either six or eight cycles of CHOP chemotherapy recruited for this study. These patients have been followed up for six months. The data were collected using a standard structured questionnaire. The collected data were analyzed by SPSS software (version 19). **Results:** There was a significant difference in clinical responses of B symptoms, lymphadenopathy and splenomegaly between six and eight cycles of CHOP chemotherapy. In observing hepatomegaly, no significant difference was observed in response to CHOP after both six & eight cycles. **Conclusion:** This study concluded that, regarding the lymphadenopathy, splenomegaly and B symptoms (fever, sweating and weight loss), there was a marked improvement after eight cycles.

KEYWORDS: Non Hodgkin Lymphoma, lymphadenopathy, spleenomegaly, Lymphoma, CHOP, Chemotherapy.

INTRODUCTION

Non Hodgkin lymphoma (NHL) is a group of blood cancers that includes all types of lymphoma, except Hodgkin lymphoma.[1] The NHL is one of the ten most common cancers in the developed world. The incidence has increased significantly over the past two decades and it is a particular burden in patients over the age of 60 years.[2] In the United States 2.1% of people are affected at some point in their life. The most common age at diagnosis is between 65 to 75 years old.[3] Symptoms include enlarged lymph nodes, fever, night sweats, weight loss, and tiredness. Other symptoms may include bone pain, chest pain, or itchiness. Some forms are slow growing while others are fast growing.[1] Treatment depends on if the lymphoma is slow or fast growing and if it is in one area or many areas. Treatments may include chemotherapy, radiation, immunotherapy, targeted therapy, stem cell transplantation, surgery, or watchful waiting.[1] In the past the CHOP (**c**yclophosphamide, **h**ydroxyldaunorubicin [doxorubicin], **o**ncovin [vincristine], and **p**rednisone) chemotherapy regimen was considered the gold standard for the treatment of NHL.[4]

Rituximab (R), a chimeric anti-CD20 mono-clonal antibody, is effective when given as a single agent in the treatment of relapsed or refractory indolent lymphomas and has activity in relapsed or refractory diffuse large-B-ell lymphoma.[5-8] Rituximab in combination with CHOP (R-CHOP) had a good safety profile and induced responses in over 90 percent of patients with indolent or aggressivelymphoma.[9,10] Recently, R- CHOP is the standard regimen of therapy in NHL. In Sudan we couldn't adopt the use of rituximab because it is very expensive, so we still use CHOP alone. This study conducted to determine clinical response after six cycles of CHOP therapy and compare it with clinical response after completing eight cycles in the same patients.

METHODS

This is a cross-sectional prospective hospital-based study conducted on 65 patients above 18 years of age with NHL, treated with either six or eight cycles of CHOP chemotherapy, attend oncology hospital from June to August 2016. This study was approved by the ethical committee, Sudan Medical Specialty Board (SMSB). These patients have been followed up for six months. The data were collected using a standard structured

questionnaire, clinical Examination and laboratory investigations (including complete haemogram and lymph node biopsy with immunohistochemistry and bone marrow examination) at presentation and after receiving six cycles of CHOP and again after completing eight cycles. The collected data were analyzed using the software program of the Statistical Package for Social science for Windows (SPSS) version 19.

RESULT

A total of 65 patients were included in the study. Of 65 patients, 48 were males (73.8) and 17 were females (26.2). Most of the patients were between 41-60 years 30 patients (46.2%). Regarding residence and origin, the majority of the study population were from western of Sudan I, e, 40 patients (61.5%). All the 65 patients have positive CD 20 (100%) before the administration of CHOP treatment. Seven patients have normal LDH level (10.8%), 40 patients have their LDH double the normal value (61.5%), 18 patients have more than double the normal value (27.7%).

According to Ann Arbor staging system, 40 patients were in stage 1V (61.5%), 8 patients were in stage 111 (12.3%), 13 patients were in stage 11 (20.0%) and 4 patients were in stage 1 (6.2%) (Table 1).

Table 2 showed Classification of lymph nodes according to histological types. Table 3 showed the distribution of B symptoms among patients before and after CHOP therapy. Responses of B symptoms, lymphadenopathy, splenomegaly and hepatomegaly before CHOP and after six & eight cycles of CHOP were demonstrated in tables 3, 4.

There was a significant difference in responses of B symptoms, lymphadenopathy and splenomegaly between six and eight cycles of CHOP chemotherapy. On the other hand, no significant difference was observed in the responses of hepatomegaly between six and eight cycles of CHOP chemotherapy.

Table 1:Distribution of stages among study population.

patients	Stage I		Stage II		Stage III		Stage IV		Total
	A	B	A	B	A	B	A	B	
Count	0	4	3	10	2	6	4	36	65
(%)	(0.0)	(6.2)	(4.6)	(15.4)	(3.1)	(9.2)	(6.2)	(55.3)	(100)

Table 2: Classification of lymph nodes according to histological types.

Patients	Diffuse	Follicular	Nodular	Total
Count	39	17	9	65
(%)	(60.3)	(25.4)	(14.3)	(100)

Table 3:SymptomsB before CHOP and after six & eight cycles of CHOP.

	Fever		Sweating		Weight Loss	
	Present Count (%)	Absent Count (%)	Present Count (%)	Absent Count (%)	Present Count (%)	Absent Count (%)
Before Treatment	46 (70.8)	19 (29.2)	27 (41.5)	38 (58.5)	29 (44.6)	36 (55.4)
After 6 cycles CHOP	32 (49.2)	33 (50.8)	13 (20.0)	52 (80.0)	6 (9.2)	59 (90.8)
After 8 cycles CHOP	4 (6.2)	61 (93.8)	0 (0.0%)	65 (100)	0 (0.0%)	65 (100)

Table 4: Response of Lymphadenopathy, Hepatomegaly and Splenomegaly to six & eight cycles of CHOP.

	Lymphadenopathy (63 Patients)		Hepatomegaly (16 Patients)		Splenomegaly (37 Patients)	
	After 6 cycles	After 8 cycles	After 6 cycles	After 8 cycles	After 6 cycles	After 8 cycles
Regressed Count (%)	43 (68.3)	59 (93.7)	1 (6.2)	1 (6.2)	29 (78.4)	36 (97.3)
Unchanged Count (%)	20 (31.7)	4 (6.3)	15 (93.8)	15 (93.8)	8 (21.6)	1 (2.7)
Increased Count (%)	0 (0.0)	0 (0.0)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

DISCUSSION

In this study, we assessed the clinical response after six and eight cycles of CHOP among 65 adult Sudanese patients with NHL. We found that, the majority of patients (73.8%) were males; this was consistent with a study done by Pfreundschuh M, Trumper L, KloessM, et al.[11] According to age distribution, we found that, most of the patients between 41 - 60 years, which isn't consistent with results ofPfreundschuh M, Trumper L, Kloess M, et al[11] which showed predominance above 60 years.

In considering immunohistochemistry, all of the study population had positive CD 20.

75.3% of our patients had raised LDH level, 61.5% had doubled the normal value and 27.7 had more than double the normal. Pfreundschuh M, Trumper L, Kloess M, et al [11]found only 50% had raised the LDH level.

According to Ann Arbor classification, we observed that, more than half of the patients (55.4) were in stage 1V followed by stage 11 then 111 and 1. This in contrast to a study done by Pfreundschuh M, Trumper L, Kloess M et al.[11] , which showed predominance of stage 11 followed by 1V, then 111 and1.

According to histological type of lymphoma, we found that the diffuse one was the commonest followed by follicular and then the nodular type. This is consistent with results done by Coiffier B, Lepage E, Briere J, et al.[12]

Regarding B symptoms, there is a significant difference in response of these symptoms to six and eight cycles of CHOP therapy this is not consistent with results from a study done by Pfreundschuh M, Trumper L, Kloess M, et al.[11] There is a significant difference in regression of enlarged lymph nodes after six and eight cycles; this is confirming the results done by Coiffier B, Lepage E, Briere J, et al[11]. In our study, we observed that, there is no significant difference in the response of hepatomegaly to six and eight cycles of CHOP chemotherapy, this is consistent with results from a study done by Coiffier B, Lepage E, Briere J, et al.[12] From this study we can say that, there is a significant difference in response of splenomegaly between six and eight cycles of CHOP therapy, this isn't compatible with the results in the study done by Pfreundschuh M, Trumper L, Kloess M, et al.[11]

It is obvious that we lack comparative studies, since all studies were done in R- CHOP (not in CHOP).

CONCLUSION

We concluded that there is a significant difference in clinical response after six & eight cycles of CHOP chemotherapy, including improvement in B symptoms, lymphadenopathy, and splenomegaly. Regarding hepatomegaly, no significant difference was observed in response after six & eight cycles of CHOP chemotherapy. More studies were needed, in Sudan, to relate the clinical response to the side effects of these drugs, since the patients would be exposed to these chemotherapy for a long period of time.

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