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Hematological malignancies in Chattogram region: A cross sectional study

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This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made.

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List of abbreviations

AIDS	Acquired immunodeficiency syndrome
ATLL	Adult T-cell leukemia or lymphoma
ALL	Acute lymphoblastic leukemia
AML	Acute myeloid leukemia
CAC	Clinical Advisory Committee
CLL	Chronic lymphocytic leukemia
CML	Chronic myeloid leukemia
CVASU	Chattogram Veterinary and Animal Sciences University
CMCH	Chittagong medical college and hospital
DLBCL	Diffuse large B-cell lymphoma
EBV	Epstein–Barr virus
FL	Follicular lymphoma
HD	Hodgkin's disease
HDN	Histiocytic and dendritic cell neoplasm
HM	Hematological malignancies
HSCs	Hematopoietic stem cells
LSCs	Leukemic stem cells
MBCN	Mature B cell neoplasm
MDS	Myelodysplastic syndrome
MM	Multiple myeloma
MTCN	Mature T and NK cell neoplasm
MTX	Methotrexate

NHL	Non-Hodgkin lymphoma
SD	Standard deviation
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

Abstract

Hematologic malignancies (HM) are of diverse incidence, prognosis, and etiology. HM are a heterogeneous group of cancers that originated in the hematopoietic or lymphoid tissues. The aim of the study was to evaluate the patterns of common Hematological Malignancies in Chittagong. This retrospective observational cross-sectional study was carried out from 1st January 2022 to 30th June 2022 in the department of hematology, Chattogram Medical College on 200 patients suffering from HM, who fulfilled the inclusion criteria. Informed consent was obtained from the participants. Data was collected by pre structured questionnaire addressing the socio-demographic variables, clinical features leading to diagnosis, common laboratory findings and modalities of treatment taken for overall HM patients and further comparing between various types of HM. Data were collected, processed and analyzed for descriptive statistical analysis by using computer software Statistical Package for Social Sciences (SPSS) version 23. A total of 3 categories of HM was found namely Leukemia, Lymphoma and Myeloma which was further categorized into 9 types of HM. The mean age of the respondents was 36.03 ±18.07 years. There was 56% Male and 44% Female among the respondents. Among HM most common was AML (33%) followed by ALL (26%). In AML, AML other than M3 was (23%) and AML M3 was (10%). Subsequently NHL (12%), HD (8.5%), MM (8%), CML (7%), CLL (2%), Mixed Leukemia (2%) and MDS (1.5%) were found. The most common symptoms for HM was found to be weight loss (99.5%) followed by fever (75.5%), Bony Tenderness (50.5%), Lymphadenopathy (49.5%), Hepatomegaly (42%), Headache (22.5%), Gum Bleeding (15%), Purpura (13%), Weakness (9.5%), Jaundice (6.5%), Cough (5.5%), Back Pain (5%), Hematemesis/Malena (5%), Incidental findings (5%), Renal stone (4%), Oedema (3.5%), Hematuria (2.5%), Night Sweats (2.5%), Polyuria (2%), Fracture (2%), Pruritus (1.5%), Paraplegia (1.5%), Vomiting (0.5%), Angular Stomatitis (0.5%), Respiratory Distress (0.5%) and Ascites (0.5%). Almost all patients had done Complete blood count and PBF. In Complete blood count it is seen that Blast cells were found in almost all cases of acute leukemia and was more profound in cases of AML (63.78±15.05) followed by AML M3 (61.35±16.52) and ALL (60.29±15.47). In PBF, Neutropenia was the most common finding (52.5%) followed by Lymphocytosis (17.5%) and Neutrophillia (15%). In cases of Leukemia, Bone marrow study, Flowcytometry and Cytogenetic study was done as part of investigation whereas in cases of Lymphoma, Lymph node biopsy and Immunohistochemistry remains the mainstay investigations. In cases of Myeloma, plasma

protein electrophoresis was done to make the diagnosis and Bone marrow study was also done. Most commonly used chemotherapeutic drug was Daunorubicin (51%) followed by Prednisolone (40%), Arsenic Trioxide (35.5%), Vincristine (35.5%), Cytarabine(27.5%), V138 (27%), Methotrexate (26%), L Aspaginase (23%), Cyclophosphamide (12%), Vesanoid (10%), Dexamethasone (9.4%), Bleomycin (8.5%), Vinblastine (8%), Dacarbazine (8%), Bordezomib (8%), Linamide (8%), Doxorubicin (3.5%) and 6 Mercaptopurine (2.5%). In cases of Immunotherapy, Rituximab (21.5%) is the most commonly used drug followed by Imatinib (15.5%). Most chemotherapeutic drugs and all immunotherapeutic drugs were supplied from private source and Radiotherapy and Bone marrow transplantation was not available in Chittagong. HM can occur in any age group, in both male and female group. This is a study of a large number of HM patients is a very first step in understanding the patterns and distribution of HM in Chattogram, Bangladesh. Radiotherapy is currently unavailable in Chittagong division and it is a serious concern related to the successful treatment of HM. Similarly bone marrow transplantation is also unavailable. It is a major modality of treatment in relapse or refractory cases of HM. Further investigations are necessary to understand the epidemiology, potential risk factors, biology and genetics of hematological malignancies in this country in rapid transition. In summary, we can say that among patients of HM, AML is the predominant variety. Symptoms are dominated by weight loss and fever mainly with neutropenia and blast cells being chief findings in complete blood count and PBF. In cases of treatment chemotherapy remains mainstay of treatment with Daunorubicin being the mostly used drug. In cases of Immunotherapy Rituximab and Imatinib remains the most commonly used drug. No Radiotherapy and Bone marrow transplantation is available.

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