Challenges in the management of adult haematological malignancies in a tertiary health facility in South–South Nigeria

***Idongesit Samuel Akpan,[1] Eno-Obong Udomobong Bassey[2] Ekomobong Godwin Umoh[1]**

ABSTRACT

Background: The burden of haematological cancers is of immense public health concern worldwide. The management of these cancers in resource-limited settings like ours is daunting and significantly affects outcome. **Aim**:This study aims to identify the challenges to the effective diagnosis and management of adults with haematological malignancies in the University of Uyo Teaching Hospital, Uyo, Nigeria and proffer measures that may positively impact their quality of life and survival. **Methods:**The case notes of adults with haematological malignancies managed in the Department of Haematology, University of Uyo Teaching Hospital, Uyo, Nigeria from January 2020 to December 2022 were reviewed. **Result**:Of the fifty-one (51) patients seen, 27(52.9%) were males. Most patients, 38(75%) were 40 years and above. The vast majority presented at an advanced stage of disease. The socio-economic class of the patients was mostly low (72.5%), a good number were self-employed (45.1%), some were unemployed (17.6%) and all treatments were self-sponsored or borne by caregivers, with 52.9% leaving against medical advice due to financial constraints and other reasons. Twelve patients (23.5%) were lost to follow-up while 10 (19.6%) patients died during therapy. **Conclusion**:Greater awareness about haematological cancers, intensified advocacy for government involvement through optimization of healthcare infrastructure, and health insurance policies for all and sundry would improve outcome.

Keywords: Haematological cancers, Challenges in management, Tertiary facility

INTRODUCTION

Haematological malignancies (HMs) are a heterogeneous group of cancers that primarily affect the blood and blood-producing tissues, notably the bone marrow and lymphoid tissues. These malignancies include Leukaemias which are sub-classified into Acute Leukaemia (Acute Myeloid Leukaemia [AML] and Acute Lymphoblastic Leukaemia [ALL]) and Chronic Leukaemia (Chronic Myeloid Leukaemia [CML] and Chronic Lymphocyticleukaemia [CLL]), Myeloma, Lymphomas (Non- Hodgkin lymphoma [NHL] and Hodgkin lymphoma [HL], Myelodysplastic Syndrome, Polycythaemia vera, Essential Thrombocythaemia and Primary Myelofibrosis.[1] Haematological cancers are a major cause of morbidity and mortality and account for 7.5% and 6.4% respectively of male and female cancers diagnosed globally. These cancers can occur at all ages and constitute the second leading cause of cancer mortality worldwide. In the Western world, haematological malignancies account for 6-8% of all cancers diagnosed in both sexes.[2.] In Japan, for instance, it is estimated to account for about 4.7% of all cancers.3 In Africa, HMs are the third and sixth most common malignancies in males and females respectively.[4] A study conducted in Jos, North-Central

Nigeria reported a prevalence of 19.8% while a prevalence of 10.5% was reported in Calabar in the South-South region of the Country. [5,6]

The aetiology of haematological cancers is unknown. However, for a few of these cancers, some risk factors associated with their occurrence have been identified. The cancers are believed to be triggered by genetic damage or mutation in somatic cells, which can arise from the effect of environmental agents such as chemicals, ionizing radiation and infections with viruses like Human Immunodeficiency virus (HIV), Epstein Barr virus, Hepatitis C virus, Human T-

Department of Haematology,[1] University of Uyo, Uyo, Akwa Ibom State, Nigeria.
Department of Paediatrics,[2] Faculty of Clinical Sciences, University of Uyo

***Corresponding Author**
Idongesit Samuel Akpan
Department of Haematology
University of Uyo, Uyo
Nigeria
Email: idongakpan200326@yahoo.com

Lymphotrophic virus; bacterial infection by Helicobacter Pylori; immunosuppression or immunodeficiency states [4,5]. The clinical presentation of these cancers is variable and depends essentially on the biology of the neoplasms and the pattern and extent of spread.[7].

These malignancies constitute a huge burden for the patients, their relatives, and the society at large owing to the cost associated with their diagnosis and management, which is usually protracted. The cost of managing these diseases is typically borne by patients and their families, primarily covering hospital bills, blood and blood product procurement, medications, and other necessary treatment items. Individuals diagnosed with these conditions often rely on out-of-pocket expenses, which can prevent them from starting, continuing, or completing their treatment due to financial constraints. Even for those who complete the recommended regimens, personal or family income may be severely depleted.[8]

Challenges in the management of haematological cancer patients in low-income countries are rife and can significantly affect the outcome of treatment [1,3]. While developed economies are concerned with increased survival and cure rates, development of improved therapies and achievement of better quality of life [8], most developing nations are grappling with poor data records, ignorance, apathy to seek medical attention, financial difficulties due to poverty and non-availability of health insurance, superstitious beliefs, increased patronage of traditional or spiritual healers, paucity of screening, diagnostic and therapeutic facilities, lack of centres with specialised health workers, low level of awareness of haematological malignancies among healthcare providers, high cost or unavailability of chemotherapeutic agents and lack of support at the community level.[1,9-11]

This study aimed to highlight the challenges that are associated with the management of adult haematological malignancies in the University of Uyo Teaching Hospital and how they affect outcome, as well as proffer measures which may improve the quality of life and survival of the patients.

METHODS.

This was a 3-year (2020-2022) hospital-based retrospective study utilizing data from patients' case notes retrieved from the Department of Haematology and Blood Transfusion and the Medical Records Department of the University of Uyo Teaching Hospital, Uyo. The hospital is a 500-bed tertiary health facility that offers specialist care to the hospital community and its environment. It serves as a referral centre for the neighbouring states which include Cross River, Rivers and Abia.

The cases included in the study were those who had confirmed diagnoses made by Haematologists and Anatomic Pathologists through morphology/histology with or without immunophenotyping, cytogenetics or molecular analysis and were adults aged 20 years and above. Cases with incomplete data or inconclusive diagnoses were excluded from the study. Data collected from the case notes included socio-demographics, treatment process, progress and outcome.

The results were recorded using simple descriptive statistics (frequencies and percentages) and presented as charts and simple proportion tables.

RESULTS

Of the three hundred ninety-six (396) cases of malignancies that were histologically diagnosed over the three years (January 2020 to December 2022), fifty-one (12.9%) were adults with haematological malignancies. The ages of the patients ranged from 20 to 89 years. The modal age group was the 6th decade of life. Males comprised 27 (52.9%) and females 24 (47.1%) of the patients, with a male-to-female ratio of 1.1:0.9. The socio-economic class of the patients was mostly low (Table 1).

Table 1: Sociodemographic Characteristics of the Study Subjects

Sociodemographic Variables	Frequency (%)
Age (years)	
20 – 39	13 (25.5)
40 – 59	27(52.9)
60 – 79	10 (19.6)
≥80	1(2.0)
Gender	
Male	27 (52.9%)
Female	24 (47.1%)
Level of education	
No formal education	2 (3.9)
Primary education	8 (15.7)
Secondary education	22 (43.1)
Post-secondary education	19 (37.3)
Occupation	
Students	6 (11.8)
Civil servants	11 (21.6)
Industrial workers	8 (15.7)
Traders	7 (13.7)
Printers	2 (3.9)
Barber	1 (2.0)
Masons	3 (5.9)
Painters	2 (3.9)
Farmers	2 (3.9)
Unemployed	9 (17.6)
Socio-economic Class	
High	4(7.8)
Middle	10 (19.6)
Low	37 (72.5)

The various cases of haematological malignancies diagnosed in the patients reviewed over the study period are presented in Fig 1.

Tables 2 and 3 show the distribution of the haematological malignancies by age and gender respectively. Majority of the patients presented at an advanced stage of disease with all therapies being self-sponsored or supported by caregivers. There was a 37.3% rate of discharge against medical advice due to financial constraints (Table 4).

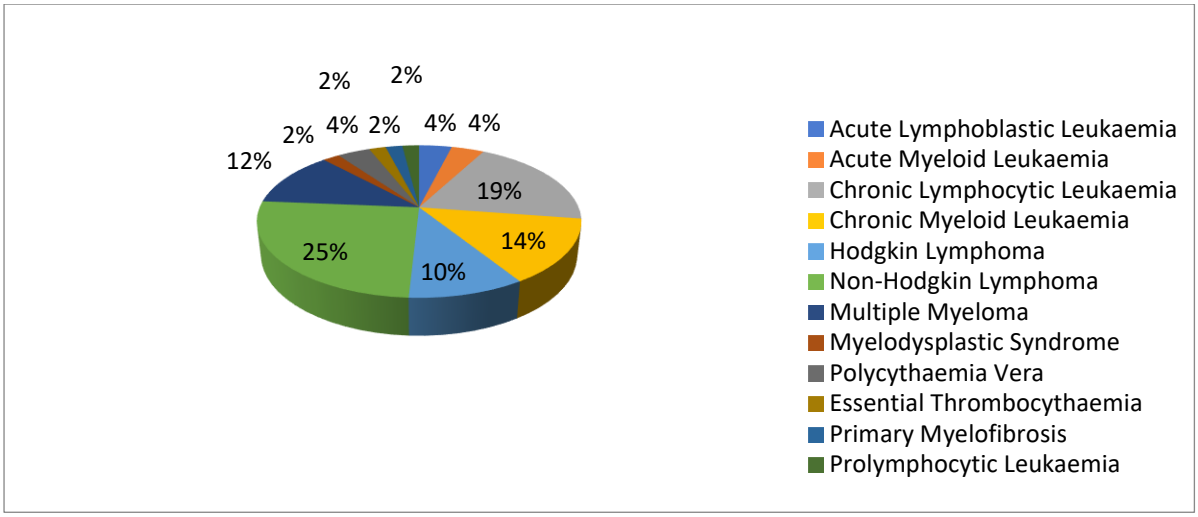

Fig.1: Cases of various Haematological Cancers seen from January 2020 to December 2022

Table 2: Frequency and Age Distribution of the Patients

Haematological Malignancies	**20–39 years**	**40–59 years**	**60–79 years**	**≥80 years**
Acute Lymphoblastic Leukaemia	2	0	0	0
Acute Myeloid Leukaemia	1	1	0	0
Chronic Lymphocytic Leukaemia	0	8	2	0
Chronic Myeloid Leukaemia	3	4	0	0
Multiple Myeloma	0	5	1	0
Polycythaemia Vera	0	1	1	0
Essential Thrombocythaemia	0	0	1	0
Primary Myelofibrosis	0	0	1	0
Myelodysplastic Syndrome	0	0	1	0
Hodgkin Lymphoma	4	1	0	0
Non-Hodgkin Lymphoma	3	7	3	4
Prolymphocytic Leukemia	0	0	0	1
Total	**13**	**27**	**10**	**1**

Table 3: Frequency and Sex Distribution of the patients

Haematological Malignancies	Frequency		Total (%)
	Male %	Female %	
Acute Lymphoblastic leukaemia	1 (3.7)	1 (4.2)	2 (3.9)
Acute Myeloid Leukaemia	1 (3.7)	1 (4.2)	2 (3.9)
Chronic Lymphocytic Leukaemia	4 (14.8)	6 (25.0)	10 (19.6)
Chronic Myeloid Leukaemia	3 (11.1)	4 (16.7)	7 (13.7)
Multiple Myeloma	4 (14.8)	2 (8.3)	6 (11.7)
Polycythaemia Vera	1 (3.7)	1 (4.2)	2 (3.9)
Essential Thrombocythaemia	1 (3.7)	0 (0.0)	1 (2.0)
Primary Myelofibrosis	1 (3.7)	0 (0.0)	1 (2.0)
Myelodysplastic Syndrome	0 (0.0)	1 (4.2)	1 (2.0)
Hodgkin Lymphoma	2 (7.4)	3 (12.5)	5 (9.8)
Non-Hodgkin Lymphoma	9 (33.3)	4 (16.7)	13 (25.5)
Prolymphocytic Leukaemia	0 (0.0)	1 (4.2)	1 (2.0)
Total	**27 (52.9)**	**24 (47.1)**	**51 (100.0)**

Table 4: Stage at Presentation, Sponsorship of Treatment, Challenges of Diagnosis/Treatment and Treatment Outcome

Variable	Frequency (%)
Stage of disease at presentation	
Early	3 (5.9)
Late	48 (94.1)
Sponsorship of treatment	
Self-sponsored/caregivers	51 (100.0)
Insurance/Non-Government Organization	0 (0.0)
Challenges of diagnosis/treatment	
Late presentation	48 (94.1)
Delayed diagnosis due to lack of facilities	5 (9.8)
Financial constraints	36(70.5)
Burn-out of caregivers	23(45.1)
Outcome of treatment	19 (37.3)
Discharge against medical advice (financial constraints)	8 (15.7)
Discharge against medical advice (other reasons)	2 (3.9)
Referred	12 (23.5)
Loss to follow-up	10 (19.6)
Death	

DISCUSSION

The preponderance of haematological malignancies in male patients in this study is a common finding that has been reported both in low and higher-income countries [5,6,12]. Most patients were middle-aged. The high frequency of non-Hodgkin lymphoma in the 6th decade as documented in this series could be one of the reasons why patients in the aforementioned age group were among the most affected. Some other studies have reported similar findings with non-Hodgkin lymphoma being identified as the most prevalent haematological malignancy. [1,4,5,6,9]

Though challenges in the management of haematological cancers are widely reported across

the globe, [2,3,10,12] there is some variation in perspective between the low- and middle-income countries (LMIC), and high-income ones. For instance, it was observed that the majority of the patients with haematological malignancies during the period under review presented at advanced stages of the disease. This finding is similar to those reported in studies conducted in other parts of Nigeria.[5,6,8] and Africa.[10] The factors that accounted for the tardiness in seeking medical attention in our setting were majorly patient-related. The socio-economic status and level of higher educational attainment were quite low as observed in this study. Hence, the associated low level of awareness and ignorance of the patients about diseases of utmost public health importance including haematological cancers, resulted in the non-recognition of symptoms of the diseases early enough. Other contributing factors were financial constraints and concern about the cost of care in hospitals which affected healthcare seeking disposition of many patients. This trend is uncommon in developed climes where presentation is mostly at early stages. In a study conducted among patients with haematological malignancies in England, it was reported that only 16% of the patients delayed for more than 3 months following the onset of symptoms before seeking medical attention.[13]

The weak healthcare system also played a critical role in the delayed diagnosis of some cancers, in that diagnosis and cancer classification was based solely on morphology due to the unavailability of the requisite ancillary diagnostic facilities for specialized tests such as serum protein electrophoresis, immunofixation, cytochemical studies, cytogenetic analysis, molecular genetic tests, immunophenotyping and immunohistochemistry. The consequences of lacking these specialized tests are that benign conditions may be wrongly labelled as malignant and this can have some untoward effects, ranging from emotional distress to unwarranted exposure of the patients to chemotherapeutic agents, some of which can cause secondary malignancies, wastage of patients' resources in procuring cytotoxic drugs and other unnecessary treatment. To avert these situations, there was therefore a need, for some specimens to be sent to other centres. It is important to note that the cost of investigations and treatment was borne by the patients and their caregivers. This resulted in financial burn-out, given that most of them were unable to cope with payments for requested investigations for the confirmation of cancer diagnosis, as well as sustain drug procurement even while receiving the cyclical chemotherapeutic regimens. Similar findings have been reported by other authors within Nigeria and the African region.[8,10,11] The World Health Organization has recommended universal health coverage intending to make healthcare accessible and affordable to individuals regardless of their financial capability.[3] This can be attained through health insurance. Currently, only 4% - 5% of Nigerians have some form of government-funded or private insurance,[8] thus out-of-pocket payments for healthcare services remain the order of the day. Expanding the health insurance coverage to involve even self-employed individuals, who may constitute a large population of those afflicted by cancers as observed in this study, and advocating for increased uptake by government at all levels including private enterprises will mitigate this challenge.

The grim mortality outlook, the increased number of patients who left against medical advice due to financial constraints and other reasons and the high default rate noted in this study are true reflections of the bleak outcome of cancer management in our environment. In most developing nations, there is the unspoken belief that cancers are caused by demons, witches, ancestors or enemies and are undeserving of medical attention. [14] Given this, many patients often resort to seeking help from traditional, spiritual and faith healers as well as other unorthodox practitioners.[11,15,16] This may have been responsible for the high number of patients who were lost to follow-up or who left against medical advice in the present study.

The strength of this study is that it is the first study in our institution on the challenges of management of haematological malignancies. However, it has an inherent limitation. Being retrospective, information bias is inevitable. Some data may have been missed due to lack of proper documentation.

CONCLUSION

The challenges in the management of adult haematological cancer patients included late presentation, delayed diagnosis due to lack of requisite diagnostic facilities, financial constraints/poverty and burnt-out of caregivers, with a resultant high rate of default and discharge against medical advice. Greater public awareness and education about haematological cancers, intensified advocacy for government involvement by way of subsidizing the cost of diagnosis and management of haematological cancers, expanding health insurance schemes to involve self-employed individuals and

providing state-of-the-art molecular laboratories in all tertiary healthcare facilities across the country would improve outcome.

REFERENCES

1. Shehu AR, Erhabor O, Hamid K, Umar ZU. Challenges associated with the Management of Haematological Malignancies in Sub-Saharan Africa. Sokoto Journal of Medical Laboratory Science 2021; 6: 28-57.
2. Siegel RL, Miller KD, Jemal A. Cancer statistics. CA. A Cancer Journal for Clinicians 2020;70-30
3. HyunaSP, Jacques FM, Rebecca L, Siegel MP, Mathieu LM, Isabelle SM et al. Global cancer statistics 2020: GLOBOCAN Estimates of Incidence and mortality worldwide for 36 cancers in 185 Countries. CA: A Cancer Journal for Clinicians 2021; 71: 209-249
4. James J, Egesie OJ, Damulak OD Jatay ED, Zakari A, Okeke CN et al. Pattern of Haematological malignancies in a Tertiary Hospital in Yola, Nigeria: A Three-year Retrospective Review. Orient Journal of Medicine 2022; 34: 3-4
5. Egesie OJ, Jatau ED, Damulak OD, Ayuba Z, James J, Okeke CN et al. Prevalence and type of haematological malignancies among adults in a tertiary hospital in Jos- Nigeria: A sixteen-year retrospective analysis. Highland Medical Research Journal 2017; 17:92-96.
6. Akaba K, Nwogoh B, Akpan I, Bassey O, Ofonime E, Petters et al. Epidemiological Pattern of Adult Haematological Malignancies in a Tertiary Hospital in Cross River State. International Research Journal of Oncology 2019; 2:16-24.
7. Hoffbrand AV, Steensm DP. The Genetics of Haematological malignancies. In Hoffbrand AV, Steensma PA (eds). Essential Haematology. 8th edition. John Wiley and Sons Ltd: Chichester. 2019;121-134.
8. Ngwu NI, Nwannadi IA. Haematological malignancies in Nigeria: challenges in Diagnosis and Management – A Systematic Review. Journal of Biomedical Research and Clinical Practice 2018; 3:283-292.
9. Akpan IS, Ekanem AM. Pattern of Haematological Malignancies among Adult Nigerians attending a Tertiary Hospital in South-South Nigeria: Eight-year Review. World Journal of Biomedical Research 2016; 3:17-33.
10. Waubita M, Sikateyo B, Zulu JM. Challenges for Health care providers, parents and patients who face a childhood cancer diagnosis in Zambia. BMC Health Services Research 2018; 18:34.
11. Akpan IS, Tanimowo MO, Bassey EI, Uboh EE, Afia RI. Adult Lymphomas in Tertiary Hospital in South-South Nigeria: A Review of Clinicopathologic Features and Treatment Outcome. International Blood Research and Reviews 2021;1228-40.
12. Cordoba R, Eyre T, Klepin H, Wildes T, Goede V.: A comprehensive approach to therapy of haematological malignancies in older patients. Lancet Haematology2021; 8:840-852.
13. Howell DA, Hart RI, Smith AG, Macleod U, Partmore R, Roman E.: Disease-related factors affecting timely lymphoma diagnosis: a quantitative study exploring patient experience. British Journal of General Practice 2019; 69:134-145.
14. Eldeek BS, Alahmadi JR, Alattas M, Sait K.: Knowledge, perception and attitudes about cancer and its treatment among Healthy Relatives of Cancer Patients: Single Institution Hospital –Based Study in Saudi Arabia. Journal of Cancer Education 2014;29(4): DOI:10.10071513187-014-0653-7.
15. Ngim NE, Nottidge T, Oku A, Akpan AF. Why do trauma patients leave against medical advice? Ibom Medical Journal 2013; 6:1-4.
16. Bassey EU, Akpan IA, Nnoli C, Akpan EE. Challenges in the Management of Childhood Cancer Patients in a Tertiary Hospital in Southern Nigeria. Asian Journal Of Medicine and Health 2022; 20:103-108.