ORIGINAL ARTICLE

CLINICAL PRESENTATION OF NEWLY DIAGNOSED ACUTE LEUKAEMIA PATIENTS IN A TERTIARY CARE HOSPITAL

Jan Muhammad Afridi, Arshia Munir, Sabahat Amir, Fazlur Rahim, Yasir Rehman

Department of Paediatrics, Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objective: To determine the frequency of clinical presentation of newly diagnosed 50 patients of acute leukaemia.

Material & Methods: This study was conducted at Department of Paediatrics, Khyber Teaching Hospital, Peshawar, Pakistan from March 2016 to September 2017. A cross-sectional descriptive study design was used and 50 patients presenting with fever, pallor, organomegaly and diagnostic evidence of newly diagnosed acute leukaemia were elected through non randomised convenient sampling. Common clinical features were noted along with hematological parameters. The cases were then managed according to standardized management criteria.

Results: Pallor (80%) fever high grade (78%) splenomegaly (62%) were the most common clinical features. Bone marrow examination showed total 46 (92%) patients of ALL and 4 (8%) patients of AML.

Conclusion: In our study we found out that acute lymphoblastic leukaemia was the most common type of leukaemia comprising of 46 (92%) patients and 4 (8%) patients were acute myelogenous leukaemia. Fever and Pallor are the commonest clinical findings of acute leukaemia. Bone marrow examination is mandatory for the diagnosis because delay in the diagnosis will adversely affect the management.

Key Words: Acute leukaemia, lymphoblastic, Mylogenous, Fever, Pallor. Organomegaly.

This article may be cited as: Afridi JM, Munir A, Amir S, Rahim F, Rehman Y. Clinical presentation of newly diagnosed acute leukaemia patients in a tertiary care hospital. J Med Sci 2018; 26: (1) 54-57.

INTRODUCTION

Acute leukaemias are one of the most common cancers. About 20,000 cancer cases are diagnosed and over 10,000 annual deaths occur in United States[1]. Childhood leukaemia was the first disseminated cancer shown to be curable and consequently has represented the model malignancy for the principles of cancer diagnosis, prognosis and treatment[2]. They have a large effect on cancer survival statistics[3].

Acute leukaemia are the neoplasms of the hematopoietic stem cell precursors manifested as clonal expansion of myeloid and lymphoid haematopoiesis[1]. Acute leukaemia can be classified into acute lymphoblastic leukaemia and acute myelogenous leukaemia depending upon the type of cell lineage affected. In children the ratio of AML to ALL is around 1:4 and AML accounts for 15-20% of such cases[4]. Etiological factors in development of leukemias are hereditary disorders with susceptibility to chromosomal breakage exposure to radiation[5,6]. Acute lymphoblastic leukaemia (ALL) is the most common malignancy in children[1]. It is classified according to the FAB (French American British) criteria into L1, L2, L3 subtypes. Acute myelogenous leukaemia is also divided according to FAB classification system in M0-M7 subtypes[7].

Bone marrow biopsy is the only way to reach at the correct diagnosis of leukemias[8]. Bone marrow examination includes pathological examination of bone marrow aspirate and bone marrow biopsy specimens[9]. In leukaemia neoplastic cells infiltrating blood and bone marrow[10]. Bone marrow shows >20% blast cells[11]. It is more common in the paediatric age group[12]. It is the most frequent and safe procedure done routinely in paediatric unit. It can be performed easily even in the presence of severe thrombocytopenia with little or no risk of bleeding[13].

Dr. Jan Muhammad Afridi (Corresponding Author)
Associate Professor
Department of Paediatrics, Khyber Teaching Hospital, Peshawar - Pakistan
Cell: +92-333-9122720
Email: drjanafridi@yahoo.com

Date Received: October 10, 2017
Date Revised: January 5, 2018
Date Accepted: February 20, 2018

Commonly it is done to evaluate unexplained cytopenia and malignant conditions like leukaemia[14]. Cytogenetics studies, flow cytometry and immunohistochemical studies play a key role in determining the exact diagnosis and ultimate prognosis of acute leukaemia[15]. The facilities are not commonly available and because high cost make them difficult to do in developing countries[16].

The clinical presentation of acute leukaemia is variable and it makes diagnosis difficult for the treatment[17]. Early diagnosis and treatment is important as it can be too good for remission and cure rates. In childhood acute lymphoblastic leukemia (ALL), major improvements in therapy and supportive care have led to increased survival rates[18]. There have been few studies which have reported the clinical presentation of patients with acute leukaemia[19]. The objective of this study was to determine the mean presenting complaints and clinical findings of acute leukaemia in children and to document the age and gender distribution of various types of acute leukaemia.

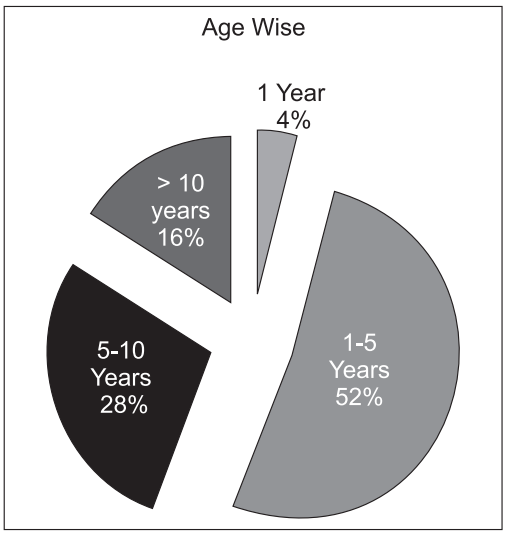
MATERIAL & METHODS

This study was conducted at Department of Paediatrics, Khyber Teaching Hospital, Peshawar, Pakistan from March 2016 to September 2017. A cross-sectional descriptive study design was used and 50 patients presenting with fever, pallor, organomegaly and diagnostic evidence of newly diagnosed acute leukaemia were elected through non randomised convenient sampling. Common clinical features were noted along with hematological parameters. The cases were then managed according to standardized management criteria.

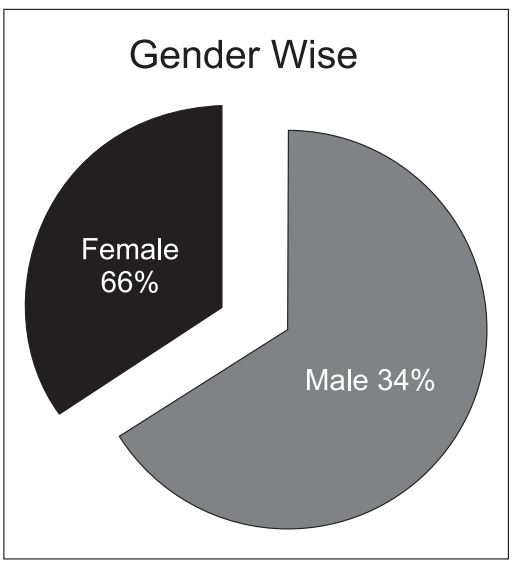
RESULTS

Out of 50 patients there were 33 (66%) male and 17 (34%) female. The most common age group affected with acute leukaemia was 1 to 5 years almost 26 (52%) followed by 5 to 10 years 14 (28%) less than 1 year age group affected with acute leukaemia was that of 2 (4%) and more than 10 years were 8 (16%).

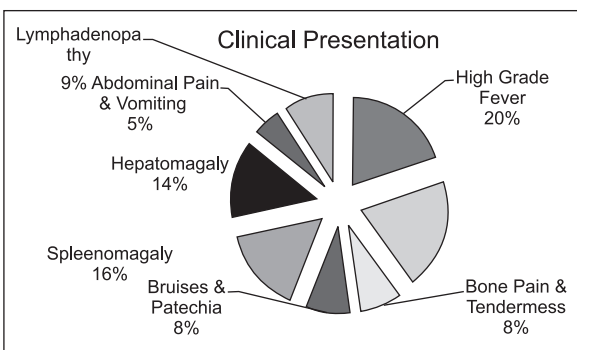
Pallor and fever were the most common presenting complaints followed by organomegaly. Other clinical features which were present were lymphadenopathy bruises and patechia, bone pain and tenderness abdominal pain and vomiting. The pie chart 1 and 2 shows age and gender wise frequency of acute leukaemia. The clinical presentation of patients with acute leukaemia is shown in pie chart 3. Pie chart 4 shows frequency of different types of leukaemia.



Pie chart 1: Age wise distribution



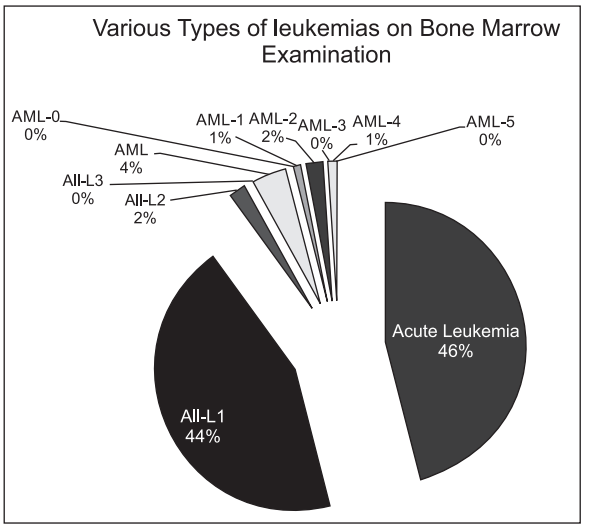
Pie chart 2: Gender wise distribution



Pie chart 3: Clinical presentations

DISCUSSION

Acute leukaemia is a disease of bone marrow and peripheral blood, any organ or tissue may be infiltrated by the abnormal cells. The duration of symptoms



Pie chart 4: Various types of leukemias on Bone Marrow Examination

in children presenting with acute leukaemia may vary from days to months. The first symptoms are usually non specific and include anorexia irritability and lethargy[20].

In our study fever is the most common finding in approximately 78% of patients. This fact is clearly highlighted in the national study by Faseeh Shahab et al[1] and international studies by Conter V et al[9] where fever was first presenting complaint approximately 77% and 60% respectively. Progressive bone marrow failure leads to pallor (anaemia) bleeding (thrombocytopenia) and susceptibility to infection (neutropenia)[11]. In our study 80% of patients presented with Pallor. Whereas Faseeh et al reported the same about 33% of patients presented with Pallor[1]. This is consistent with several other studies Zaki et al[19] reported fever, bleeding and Pallor as the main presenting complaints. In our study enlargement of liver, spleen and lymph nodes are more common in acute leukaemia. Hepatomegaly was seen in 56% of patients, splenomagaly in 62% and lymphadenopathy in 36% of patients. Similar findings were reported at Faseeh et al[1] with hepatomegaly in 71% patients splenomegaly 66% lymphadenopathy in 71% of patients[1].

These findings were consistent with the notion that patients in our world presents to hospital when the disease has reached and advanced stage[11]. This increase in number of organ enlargement can be attributed to the fact that in children their organs are easily palpable if slight increase in size as compared to the adults. In this study male patients were affected more as compared to female patients 66% vs 34%. This was reported same by Yasmeen et al as 62% were male and 38% were female patients[1].

CONCLUSION

Fever and Pallor are the commonest clinical findings of acute leukaemia.

RECOMMENDATIONS

Bone marrow examination is mandatory for the diagnosis because delay in the diagnosis will adversely affect the management. In childhood acute lymphoblastic leukemia (ALL), major improvements in therapy and supportive care have led to increased survival rates. Early diagnosis and treatment is important as it can be too good for remission and cure rates.

REFERENCES

1. Shahab F, Raziq F. clinical presentation of acute leukaemia journal of college of physician and surgeon Pakistan 2014.24 (7) 472-76.

2. David G. Tubergen, Archie Bleyer, A. Kim Ritchey and Erika Friehling. The Leukemias, Ch 495. Nelson text book 20th edition.

3. Jemal A, Siegel R, Ward E. Cancer statistics, 2006. CA Cancer J Clin. 2006; 56: 106-30.

4. Kulshrestha R and Sah SP. Pattern of Occurrence of Leukemia at a Teaching Hospital in Eastern Region of Nepal - A Six Year Study. J Nepal Med Assoc 2009;48 (3):35-40.

5. Miller RW. Radiation. Chromosomes and viruses in the etiology of leukemia. Evidence from Epidemiologic Research. N. Engl. J. Med., 1 964;271:30-34.

6. Ichimaru M, Ishimaru, T. and Belsky, J.L. Incidence of leukemia in atomic bomb survivors belonging to a fixed cohort in Hiroshima and Nagasaki, 1950-1971: Radiation dose, years after exposure, age of exposure and type of leukemia. J. Radiat. Res., 1978;19:262-67.

7. Cohen MD, James D, Hoyer MD, Paul S, Kurtin. Acute myeloid leukaemia with minimal differentiation patti L. Feb 1998.

8. Kabira SG, Islam MDU, Choudhary ASMJ. Prevalence of hematological disorder, A bone marrow study of 177 cases in 9 Private hospital at Faridpur. Faridpur med coll. J. 2010 ;5 (1) 11-13.

9. Chauhan S, Pradhan S, Ripuijaya. Evaluation of sensitivity and specificity of bone marrow trephine biopsy test in an Indian Teaching Hospital. Alexandria Journal of Medicine 16th April 2017.

10. Hirt A, Antic V, Wang E, Lüthy AR, Leibundgut K, von der Weid N, et al. Acute lymphoblastic leukaemia in childhood: cell proliferation without rest. Br J Haematol 1997;96:366-68.

11. Hoelzer D, Gale RP. Acute lymphoblastic leukaemia in adults: recent progress, future directions. Semin Hematol 1987;24:27-39.

12. Cooke JV. Incidence of acute leukaemia in children. JAMA 1942;119:547-50.

13. Raheem F, Ahmed I, Islam SA. Spectrum of hematological disorders in children observed in 424 consective bone marrow aspiration/ biopsy. Pak J med sci October-December 2005 volume. 21 No. 4 433-36.

14. Mrozek K, Heerema N, A Bloomfield CD, Cytogenetics in acute leukaemia. Blood Rev.2004 18: 115-36.

15. Piya MK, Acharya SC, Oncology in Nepal South Asian J Cancer 2012; 1: 5-8.

16. Bashir M, Zaman S, Rafatullah, Wazir F, Shoaib M, Biland B. Hematological and clinical presentation of acute leukaemia at Khyber Pakhtunkhwa. Gom J Med Sci 2010; 8: 134-40.

17. Acute lymphoblastic leukaemia Doctors Conter V, Rizzari C, Sala A, Chiesa R, Citterio M and professor Biondi A. December 2004.

18. Pui CH, Evans WE. Treatment of acute lymphoblastic leukemia. N Engl J Med 2006; 354: 166-78.

19. Zaki S, Burney IA, Khurshid M. Acute myeloid leukaemia in children in Pakistan: An Audit JPMA 2002; 52: 247-49.

20. Yasmeen N, Ashraf S. childhood acute lymphoblastic leukaemia epidemiology and clinicopathological features J Pak Med Assoc 2009; 59: 150-53.

CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Afridi JM: Idea data select & analysis
Muneer A: Literature review
Amir S: Results
Rahim F: Final manuscript approval.
Khan Y: Typing references

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.