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 haematopoietic 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\(^8\). In leukaemia neoplastic cells infiltrating blood and bone marrow\(^9\). 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\(^13\).
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Commonly it is done to evaluate unexplained cytopenia and malignant conditions like leukaemia\(^4\). Cytogenetics studies, flow cytometry and immuno-histochemical studies play a key role in determining the exact diagnosis and ultimate prognosis of acute leukaemia\(^5\). The facilities are not commonly available and because high cost make them difficult to do in developing countries\(^6\).

The clinical presentation of acute leukaemia is variable and it makes diagnosis difficult for the treatment\(^7\). 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\(^8\). There have been few studies which have reported the clinical presentation of patients with acute leukaemia\(^9\). 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 Pediatrics, 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.

**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
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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. 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 and international studies by Conter V et al 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). In our study 80% of patients presented with Pallor. Whereas Faseeh et al reported the same about 33% of patients presented with Pallor. This is consistent with several other studies Zaki et al 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, splenomegaly in 62% and lymphadenopathy in 36% of patients. Similar findings were reported at Faseeh et al with hepatomegaly in 71% patients splenomegaly 66% lymphadenopathy in 71% of patients.

These findings were consistent with the notion that patients in our world presents to hospital when the disease has reached and advanced stage. 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.

**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 leukaemia (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**

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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.
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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.

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