

An analysis of childhood acute lymphoblastic leukemia (B-Cell) for incidence of age in the capital city of Punjab

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ABSTRACT

Aim: To evaluate the age presentation of B-cell lymphoblastic leukemia.

Study design: The design of the study was cross sectional.

Setting of study: PGMI, Chughtai Institute of Pathology.

Duration of study: The duration of study was one year i.e., from 1st July 2019 to 31st June 2020.

Methods: A sample of 56 patients were included in the study. The selection of the patients was in accordance with the criteria set in the inclusion and exclusion group of the study. All the cases presenting with B-cell lymphoblastic leukemia were analyzed based on age presentation. The quantitative variable of age was recorded in Proforma. The statistical evaluation was done using SPSS version 22. The quantitative age variable was presented as mean + standard deviation

Results: The results of the study showed variation of age presentation, ranging from two years to fourteen years (2Y-14Y). The youngest patient at presentation was only 2Y of age. The mean age of presentation however was ranged at 6.28Y. The eldest presentation of B-cell lymphoblastic leukemia was 14Y. The SD value of our quantitative variable of age is 3.29.

Conclusion: The rationale of the study helped us determining the peak incidence of age presentation for B-cell lymphoblastic leukemia in children. The age ranged from 2 years to 14 years, with peak at 6 years. We conclude that these results are in close association with the findings in result of the developing countries of the world

Keywords: Lymphoblastic leukemia, B-cell, childhood

INTRODUCTION

The word cancer means growth, which is out of control and can spread in different of body¹. These cancer cells can occur in any part or organ of body. The word leukemia means cancer cells in bone marrow and lymphatic system². Leukemia can occur in both children and adults. Leukemia in early age onset are usually acute. They are fast growing and progress rapidly. Early detection and intervention is therefore needed in this child hood leukemia. The most common form of childhood leukemia is lymphoblastic leukemia. The B cells of the immune system are the commonest type of cells affected in ALL³.

The disease has a variant progression, but early detection helps in early intervention. Most of these B-cell acute lymphoblastic leukemia are treatable⁴. The course of disease starts from the bone marrow and progresses rapidly. Chemotherapy at an early stage helps in better prognosis of the disease. The presentation of childhood lymphoblastic leukemia of B-cell variety has not been studies in detail. Our study justifies the age of presentation of these B-cell ALL¹. By knowing the average age of presentation in children, and having a range of quantitative age variable, we are better in detecting the disease at early onset.

The objective of the study was to evaluate the age presentation of B-cell lymphoblastic leukemia.

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MATERIALANDMETHODS

This was a study conducted in a cross sectional pattern after approval from Ethical Review Board. All fifty six (56) patients were included in the research after the exact fulfillment of the exclusion criteria and inclusion criteria. The study was conducted for a period of 1 year, and the venue of collecting the data was PGMI (postgraduate medical institute) Lahore and CCL (Chughtai Lahore lab). The presentation age of the entire sample size was collected in a desired proforma. The required data was collected and analyzed using statistical software SPSS version 22. The outcome of our research project in the form of quantitative variable of age was narrated using mean as + standard deviation.

RESULTS

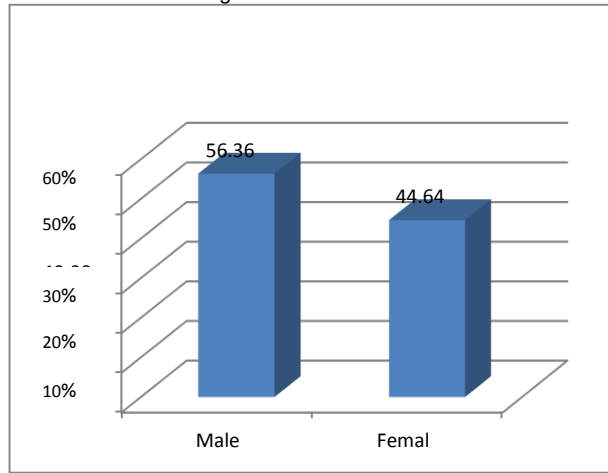
The venue of the study was PGMI and CLL in Lahore. The samples of diagnosed cases of ALL (b-cell type) were included. The outcome of the research data in the form of incidence of age presentation for childhood (b-cell) ALL were collected in the desired proforma. Variation of results was obtained from this study. The minimal age of 2years to a maximum age of 14 years were obtained from our data. The average mean age of presentation was also the same as that of rest of developing countries. The value in our research was 6.28Y. The analysis of quantitative variable using Mean + standard deviation was 3.29. These results helped us in analyzing that childhood ALL has very early presentation, so children with signs of bruising and bleeding in young age should be evaluated for (b-cell) ALL.

Early detection can result in early intervention. Induction of chemotherapy at an early stage ALL has very good prognosis.

Table1: Distribution of age

Mean	6.78 y
Median	6 Y
Std.Deviation	3.29 Y
Range	2 Y to 14y
Minimum	2.00Y
Maximum	14.00Y

Table 2:Distribution of gender



DISCUSSION

The commonest form of leukemia is Acute lymphocytic leukemia also narrated as (ALL)². This type of cancer mainly involves the blood cells and bone marrow. The sub types of acute lymphoblastic leukemia are B-cell and T-cell. However, a vast majority of over 75% of adult onset is usually the B-cell acute lymphoblastic leukemia⁵. The presence of immature white blood cells, also known as the B-cell lymphoblast's in the blood and marrow is the landmark finding of this disease. The immature WBC lack the capacity to fight infections⁶. The etiological reasoning behind formation of B-cell ALL might be any genetic disorders like down syndrome, or patients exposed to radiations.

Early diagnosis of the pathology will result in early intervention in the form of chemotherapy. With the advancement of medicines and diagnostic tools the average survival rate of ALL has jumped from just 14% to

71% in last five years⁷. There are many contributing factors to this survival rate, the most important is the age of detection. This age of detection of ALL in children is directly proportional to the outcome of the disease. The main theme of our research work was emphasized on this belief⁸. The number of WBC count and response to chemotherapy were the other two contributing factors⁹.

CONCLUSION

The rationale of the study helped us determining the peak incidence of age presentation for B-cell lymphoblastic leukemia in children. The age ranged from 2 years to 14 years, with peak at 6 years. We conclude that these results are in close association with the findings in result of the developing countries of the world.

Conflict of interest: Nil

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