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Frequency of Chromosome 11q22–q23 Deletion in Pakistani Patients with Chronic Lymphocytic Leukemia: A Single Centre Institutional Study

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INTRODUCTION

- Chronic lymphocytic leukemia (CLL) is the most common adult leukemia.
- Deletion of chromosome 11q22–q23, involving the ATM gene, is associated with aggressive disease and poorer outcomes.
- Data regarding the frequency of 11q22–q23 deletion in Pakistani patients are limited.

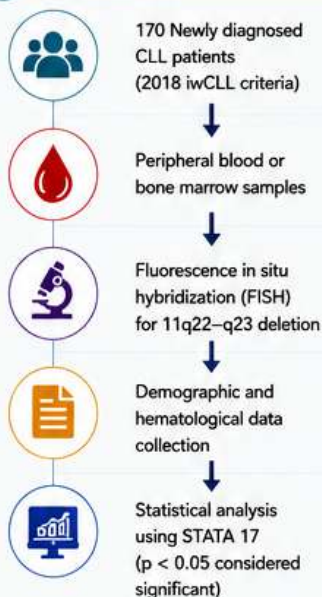


AIM

To determine the frequency of 11q22–q23 deletion in newly diagnosed CLL patients and assess its association with hematological parameters and its correlation with 13q14 and 17p deletions.

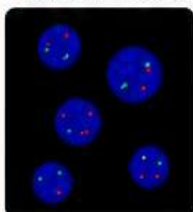


METHODS



FISH PROBE FOR 11q22–q23 (ATM)

Red: ATM (11q22–q23)
Green: CEP11 Control

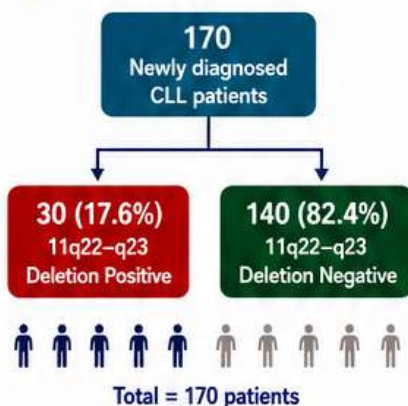


Representative FISH image showing deletion of one red (ATM) signal with two green (CEP11) signals indicating 11q22–q23 deletion.

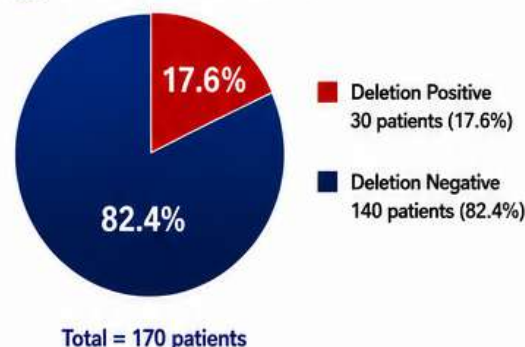


RESULTS

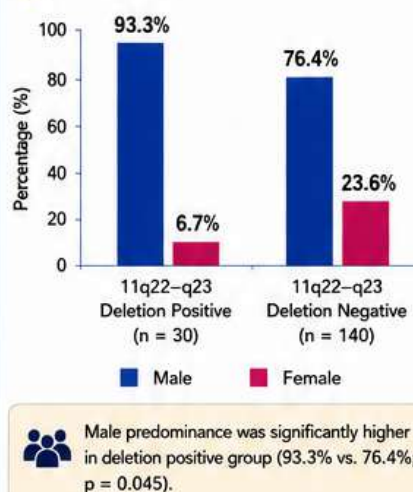
1 STUDY POPULATION



2 FREQUENCY OF 11q22–q23 DELETION



3 GENDER DISTRIBUTION

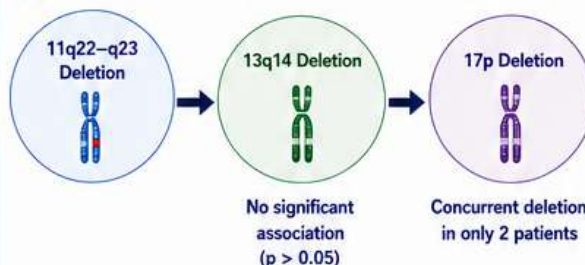


4 HEMATOLOGICAL PARAMETERS

Parameter	Deletion Positive (n = 30) Mean ± SD	Deletion Negative (n = 140) Mean ± SD	p-value
Hemoglobin (g/dL)	12.1 ± 1.8	12.3 ± 1.7	0.61
White Blood Cell (x10 ⁹ /L)	68.4 ± 32.6	63.7 ± 28.9	0.48
Platelet Count (x10 ⁹ /L)	146 ± 68	155 ± 72	0.56
Absolute Lymphocyte Count (x10 ⁹ /L)	61.8 ± 30.2	57.9 ± 26.8	0.52
Serum LDH (U/L)	338 ± 102	324 ± 108	0.59

No significant differences were observed in any hematological parameter between the two groups (all p > 0.05).

5 CORRELATION WITH OTHER CYTOGENETIC ABNORMALITIES



Patients with concurrent 11q22–q23 and 13q14 deletions showed marked leukocytosis and lymphocytosis.

Patients with concurrent 17p and 11q22–q23 deletions demonstrated anemia, marked leukocytosis, and elevated LDH.



CONCLUSION



11q22–q23 deletion was identified in 17.6% of newly diagnosed CLL patients in this Pakistani cohort. The deletion was significantly associated with **male gender** but showed **no significant association with hematological parameters or 13q14 deletion**. These findings provide valuable local cytogenetic data and highlight the need for **larger multicenter studies** to further define the **prognostic significance** of 11q22–q23 deletion in Pakistani patients with CLL.



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