Trisomy 12 is seen within a specific subtype of B-cell chronic lymphoproliferative disease affecting the peripheral blood/bone marrow and co-segregates with elevated expression of CD11a

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Abstract

In order to delineate the specific morphological and immunophenotypic features of B-cell lymphoproliferative disorders associated with trisomy 12, 172 sequential unselected cases of $CD19^{+}CD5^{+}$ B-cell disorders, primarily affecting the peripheral blood and bone marrow, were studied. Trisomy 12 was found in 24 cases (13.9%), with all cases morphologically classified as either CLL-PL or CLL-mixed by FAB criteria. Trisomy 12 was not found in any cases of typical CLL. Trisomy 12 cases demonstrated a significant higher expression of CD11a ($P<0.0001$) and CD20 ($P<0.0006$) when compared to cases with the equivalent morphology and immunophenotype, but without the chromosomal abnormality. Trisomy 12 cases also demonstrated a higher frequency of FMC7, CD38 expression and moderate to strong surface immunoglobulin staining. However, no correlation was detected between the percentages of trisomy 12 cells and cells expressing CD11a, CD38, FMC7 or sIg mean fluorescent intensity. Cells from trisomy 12 positive cases were sorted according to their CD11a expression using fluorescent activated cell sorting. There was a significant increase in the percentage of trisomy 12 cells within the $CD11a^{+}$ sorted fraction compared to the unsorted population ($P<0.05$), implying that trisomy 12 is associated with increased expression of CD11a.

With the highly specific morphological and immunophenotypic features demonstrated by trisomy 12 cases in this study, it is highly likely that these cases constitute a specific group of B-cell lymphoproliferative disorders.

Keywords: CLL; atypical CLL; trisomy 12; progression; lymphoproliferative disease

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