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The Cancer Control Challenge:
Better Understanding It to Better Face It

FREQUENCY OF SUSPECTED CASES OF CHRONIC MYELOID LEUKEMIA IN ADOLESCENTS WITH DETECTABLE *BCR-ABL* IN A HEMATOLOGY CENTER IN THE BRAZILIAN AMAZON

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Introduction: Chronic Myeloid Leukemia (CML) is a myeloproliferative neoplasm characterized by the presence of the *BCR-ABL* fusion gene, resulting from the t(9;22)(q34;q11) translocation, known as the Philadelphia chromosome. Although CML is more common in adults, cases in adolescence represent a diagnostic and therapeutic challenge. Detection of the *BCR-ABL* oncogene assists in confirming the disease and in monitoring therapeutic response. Understanding the distribution of these cases may contribute to strategies for diagnosis and management of the pathology. **Objectives:** To identify the frequency of *BCR-ABL* fusion gene transcripts in adolescent cases among patients suspected of CML treated at the HEMOPA Foundation. **Methods:** The project was previously approved by the Research Ethics Committee (CEP-CAAE 20528519.8.0000.5550). Between January 2020 and December 2024, 79 patients with detectable *BCR-ABL* transcripts were identified in the HEMOPA Foundation database. Adolescents aged between 12 and 18 years were selected, and their demographic (sex and age) and laboratory (leukocyte count) information were extracted for analysis. Detection of fusion transcripts was performed by Real-Time PCR using the Rotor Gene equipment, with TaqMan probes for specific molecular biomarkers. For quantitative variables, means were calculated, while qualitative variables were described by absolute and percentage frequencies. **Results:** Among the 79 patients analyzed at the HEMOPA Foundation, 3 (3.8%) had the B3A2 transcript of *BCR-ABL*, 2 of whom were male and 1 female, with a mean age of 14 years. The mean leukocyte count among these 3 cases was 171,666 leukocytes/mm³. **Conclusion:** The frequency of adolescents with detectable *B3A2* transcript was relatively low in the studied population. A predominance of males was observed among the identified cases. The mean age of 14 years reinforces the importance of investigating CML in adolescence. The high mean leukocyte count

suggests a significant proliferative burden in the patients. These findings highlight the need for early diagnostic attention in adolescents with suspected hematological changes. Molecular characterization, such as identification of *B3A2*, assists in diagnosis and therapeutic planning. Additional studies are recommended to assess the clinical impact of the *B3A2* transcript in this age group.

Keywords: Chronic myeloid leukemia; *BCR-ABL*; adolescence.