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POSTER ABSTRACTS

612.ACUTE LYMPHOBLASTIC LEUKEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Association of Latino Ethnicity with Cytogenetic Subtype in Pediatric Acute Lymphoblastic Leukemia: A Report from the Reducing Ethnic Disparities in Acute Leukemia Consortium

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Introduction: Acute lymphoblastic leukemia (ALL) is the most common childhood cancer, and is a heterogeneous group of bone marrow diseases with multiple cytogenetic subtypes leading to distinct clinical outcomes. Despite advances in treatments that improve survival, racial and ethnic disparities continue to persist. Latino children have a higher incidence of ALL and poorer overall survival compared with non-Latino white children. Although several studies conducted have identified cytogenetic differences in Latinos, larger studies are needed to confirm and further elaborate these findings. The aim of our study was to analyze cytogenic profiles of a large, diverse cohort of children with ALL to assess the associate between cytogenic subtypes in Latino ethnicity.

Methods: We analyzed the distribution of ALL subtypes and self-reported race/ethnicity in the Reducing Ethnic Disparities in Acute Leukemia (REDIAL) Consortium retrospective registry, which includes patients (age 0-24 at diagnosed) with newly diagnosed ALL from six pediatric cancer centers in the southwest region that were diagnosed between 2017 - 2021. The demographic and clinical factors included self-reported race/ethnicity, sex, age at diagnosis, immunophenotype, and cytogenetic aberration. Cytogenetic subtypes evaluated included double trisomies (DT; trisomies chromosomes 4 and 10), *BCR::ABL* (Ph+), *ETV6::RUNX1 KMT2A* (*MLL*) rearrangements, hypodiploidy, intrachromosomal amplification of chromosome 21 (*iAMP21) TCF3::PBX1*, *IGH*, and *CRLF2* rearrangements. Multivariable logistic regression models were used to estimate adjusted odds ratios (aORs) and 95% confidence intervals (95% CIs), accounting for sex and age at diagnosis.

Results: Of the 2,388 ALL patients evaluated, 90.2% had B-cell ALL and 64.4% self-identified as Latino and the mean age at diagnosis was 6.6 years. Compared with non-Latino white patients, the cytogenetic findings associated with favorable prognosis, DT and *ETV6:: RUNX1* t(12;21), were less frequent in Latino patients (aOR: 0.80, 95% CI: 0.65-0.98 for DT and aOR: 0.67, 95% CI: 0.53-0.85 for *ETV6:: RUNX1*). Overall, favorable cytogenetics were less frequent among Latino children compared with non-Latino white children (aOR: 0.82, 95% CI: 0.67-0.99). The neutral cytogenetic subtype *TCF3:: PBX1* was also less frequent clinically among Latino patients (aOR: 0.39, 95% CI: 0.18 - 0.85). Among unfavorable cytogenetic alterations, iAMP21 was significantly less frequent among Latino children compared with non-Latino white children (aOR: 0.57, 95% CI:

0.32-0.99). There was no significant association between other unfavorable cytogenetic subtypes and Latino ethnicity, either individually or for the overall unfavorable group.

Conclusions: Overall, our findings indicate that Latino children are significantly less likely to have favorable cytogenetic subtypes, *TCF3*:: *PBX1* and iAMP21 and prognostically neutral cytogenetics. Further evaluation of cytogenetic subtypes and race/ethnicity may elucidate their contribution to outcome disparities.

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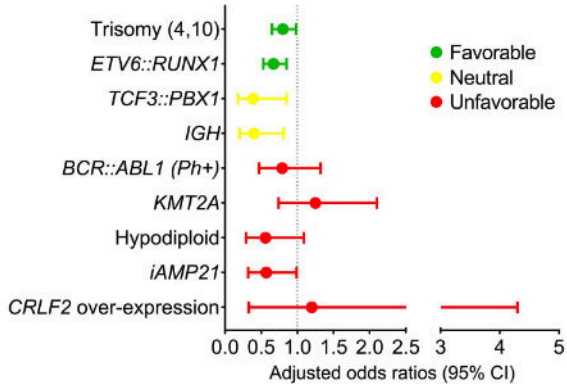

Figure 1. Adjusted odds ratios of cytogenetics by cytogenetic prognosis. Odds ratios were calculated for Latinos compared with non-Latino white children as the reference group. Model adjusted for age at diagnosis and sex.

Figure 1

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