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612.ACUTE LYMPHOBLASTIC LEUKEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Real World Outcomes in Patients with Ph-like ALL at the University of New Mexico

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Introduction:
Philadelphia chromosome-like acute lymphoblastic leukemia (Ph-like ALL) is a heterogenous subtype of ALL characterized by different translocations and molecular mutations, resulting in a gene expression profile similar to Philadelphia chromosome positive (Ph+) ALL without an identified *BCR::ABL1* translocation. Unfortunately, Ph-like ALL is characterized by worse response rates to conventional therapies and poor overall survival compared to other ALL subtypes. It is reported that 20-30% of patients with newly diagnosed ALL in the United States have Ph-like ALL and the incidence appears to vary according to ethnicity. While many therapies are under investigation including the addition of a tyrosine kinase inhibitor or ruxolitinib to conventional chemotherapy, a standardized and molecularly-based approach to treating patients with Ph-like ALL is not yet defined. There also remain questions about the efficacy of integrating inotuzumab ozogamicin or blinatumomab into first-line therapy for these patients. In addition, recent retrospective data has demonstrated promising effects of using traditional salvage therapies for ALL such as Car T cells, inotuzumab, or blinatumomab in patients with Ph-like ALL. However, the optimal sequence of treatment as well the efficacy of combining salvage therapies with agents such as ruxolitinib remains unknown. Herein, we present our institutional experience with diagnosing and treating adult patients with Ph-like ALL at the University of New Mexico. Our goal was to characterize the demographics, molecular and cytogenetic landscape, and treatment outcomes at a medical center that serves a patient population enriched for this disease.
Methods:
After IRB approval, we performed a retrospective chart review of patients diagnosed and treated at the University of New Mexico between January 1, 2018 and April 1, 2023. We included patients who were 18 years or older at the time of diagnosis, received first-line therapy at the University of New Mexico, and had gene expression profiling or FISH testing that was consistent with Ph-like ALL. Statistical analysis was performed using SPSS Statistics v.27 (IBM, 2020).
Results:
We identified 9 patients who met inclusion criteria. All 9 patients self-identified as either 'American Indian or Alaska Native' or 'Hispanic or Latino.' The median age at diagnosis was 34 and the mean BMI at diagnosis was 34.6. 5 patients were CD20 positive and 1 patient had a concurrent *IKZF1* mutation. All patients received induction chemotherapy with either a BFM regimen or HyperCVAD. 5 (55%) patients were refractory to induction and 6 (66%) patients eventually underwent allogeneic stem cell transplant as part of their treatment. 1 patient received Car T cell therapy with Brexucabtagene autoleucel following relapse after allogeneic stem cell transplant. 1 patient died 124 days after diagnosis and 8 patients are alive currently. 4 patients had *IGH:: CRLF2*, 2 patients had *P2RY8::CRLF2*,1 patient had *GTF2I::PDGFRB*,1 patient had *IGH::BCL2*,and one patient had both a positive low-dose array and a positive gene expression profile without an identified molecular or cytogenetic abnormality consistent with Ph-like ALL.
Discussion:
We present our preliminary experience of patients with Ph-like ALL diagnosed and treated at the University of New Mexico. Our patients were young with a median age of 34. Consistent with published data describing patients with Ph-like ALL, our patients had poor responses to traditional ALL treatments and most commonly had an identified fusion with *CLRF2*. Our data supports the urgent need for the development of further treatment options for patients with Ph-like ALL as well as clinical trials aimed at standardizing management.

Disclosures No relevant conflicts of interest to declare.

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