ELSEVIER

Blood 144 (2024) 3159–3160

The 66th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

632.CHRONIC MYELOID LEUKEMIA: CLINICAL AND EPIDEMIOLOGICAL

Characteristics of Pediatric and Adolescents and Young Adults (AYA) with Chronic Myeloid Leukemia: Data from the Canarian Registry of CML

Leticia Morales Espino[1], *Ruth Stuckey, PhD*[2], *Antonio Molinés Honrubia, MD*[3], *Adrián Segura-Díaz, MD*[2,1], *Santiago Sánchez-Sosa*[1,2], *Sunil Lakhwani*[4], *José David González San Miguel*[5], *Nuria Hernanz Soler, MD*[6], *Marina Gordillo, MD*[7], *Gloria González Brito, MD*[4], *Maria Tapia Torres, MD*[8], *Yanira Florido*[2], *Cristina Bilbao-Sieyro, PhD*[2,1], *María Teresa Gómez Casares, MD PhD*[1]

[1] Universidad de Las Palmas de Gran Canaria, Las Palmas, Spain
[2] Hospital Universitario de Gran Canaria Dr. Negrín, Las Palmas, Spain
[3] Complejo Hospital Universitario Insular-Materno Infantil, Las Palmas, Spain
[4] Hospital Universitario de Canarias, La Laguna, Spain
[5] Complejo Hospitalario Universitario Insular-Materno Infantil de Gran Canaria, Las Palmas, Spain
[6] Hospital Universitario Nuestra Señora de Candelaria, Santa Cruz De Tenerife, ESP
[7] Hospital José Molina Orosa, Lanzarote, Spain
[8] Hospital General de La Palma, La Palma, Spain

Introduction

CML is rare in childhood and epidemiological and biological differences may exist compared to adult CML. Results with tyrosine kinase inhibitor (TKI) treatment have shown lower response rates overall, while the long-term effects and the ability to discontinue treatment in young patients are unknown.

This study aimed to explore the clinical characteristics, TKI response, and discontinuation of the pediatric and AYA population with CML using data from the Canarian CML Registry.

Methods

OMOP-standardized data of patients included in the Canarian CML Registry were retrospectively reviewed. Patients were grouped according to age at diagnosis as pediatric (0-14 years), AYA (15-39 years), or old (>40 years). Discontinuation criteria were TKI duration ≥5 years and >MR4.5 for ≥3 years.

Results

A total of 40 young patients were included, 5 pediatric and 35 AYA. Median age at diagnosis was 29.5 years (range 3-39). 21 were male (52.5%). All 40 expressed BCR::ABL1 p210.

Compared to old CML patients (n=353, median age 61.3 years), more young patients were diagnosed in advanced phase (3.2% young vs 1.3% old), and had additional chromosomal alterations (10% vs 7.4%) and anemia (58.3% vs 48%) at diagnosis. A statistically significant difference was found at diagnosis for splenomegaly (young 4.6 cm vs old 2.4 cm, p=0.001) and leukocytes (148.6 vs 108.1, p=0.029). When pediatric vs AYA vs 40-59 years vs >60 age groups were compared, spleen size and blasts were significantly higher for the pediatric group (ANOVA: 8.5 vs 4.4 vs 3.2 vs 1.7, p<0.001; 7.7 vs 1.3 vs 0.9 vs 1.4, p=0.004, respectively).

NGS data was available for 34 young patients. Myeloid mutations were detected in 15 patients (44.1%) at diagnosis and 14.7% had an *ASXL1* mutation. In comparison, mutations were detected in 44% of older patients and 12.5% had *ASXL1*.

55% of young patients received imatinib as first-line TKI, followed by nilotinib (27.5%) and dasatinib (17.5%). A grade 5 molecular response (MR) was achieved by 13.5%, grade 4.5 by 46%, grade 4 by 27% and major MR by 13.5%; 3 patients (7.5%) failed to reach a major MR with first-line TKI.

In a median time of 24.0 months, 55% of patients lost their initial response to first-line TKI. Third line TKI was received by 9/22 (22.5%): 3 asciminib, 1 bosutinib, 4 ponatinib, 1 dasatinib.

With a median follow-up of 115 months (7-279) for young patients, 2 patients advanced to acute leukemia (5%), and 4 patients received an allogeneic transplant (10%), 2 for transformation to blast crisis and 2 for poor TKI response. Two patients died (5%), 1 after transplant and 1 from a CML-unrelated cause (intraparenchymal hemorrhage). Median progression-free survival was 30 months (pediatric) vs 188 months (AYA).

37.5% of young patients discontinued TKI (15/40) after a median TKI duration of 104 months (52.5-252). 5 relapsed (33.3%) after a median of 3.5 months (2-11.7). All responded after re-initiating TKI: 1 reached MMR and 4 reached MR4 or better.
No differences in treatment-free remission (TFR) rate after 12 months were observed between the young (64.3%) and old groups (71.0%), nor when TFR duration was compared for age groups by ANOVA (pediatric 2.0 years vs AYA 1.5 vs 40-59 years 2.5 vs >60 2.0, p=0.731).

Conclusions

As previously reported, pediatric and AYA patients had significantly higher leukocytes, blasts and splenomegaly at diagnosis, particularly those <14 years, and anemia was more frequent than for older patients.
Young patients had a higher frequency of *ASXL1* mutations and additional chromosomal alterations at diagnosis, although these observations should be confirmed in a larger cohort.
There was no difference in the TFR rates or duration of TFR for young patients who discontinued TKI. This is an important result as young patients would benefit from discontinuing therapy to limit the potential side effects of TKI treatment on development, and reduce the toxicity and adverse effects due to the prolonged exposure to TKIs from an early age.

Disclosures Segura-Díaz: *Novartis:* Honoraria; *GSK:* Honoraria; *BMS:* Honoraria. **Bilbao-Sieyro:** *ThermoFisher:* Honoraria; *AbbVie:* Honoraria; *BeiGene:* Honoraria.

https://doi.org/10.1182/blood-2024-200651