



Outcomes of Allogenic Hematopoietic Cell Transplantation for Childhood Chronic Myeloid Leukemia; Single Center Experience

Hanafy Hafez, Amr Abdallah, Mahmoud Hammad, Nayera Hamdy, Dina Yassin, Sherine Salem, Omayma Hassanain, Lama Elhalaby, Alaa Elhaddad
Children's Cancer Hospital Egypt CCHE 57357, Cairo, Egypt



Background

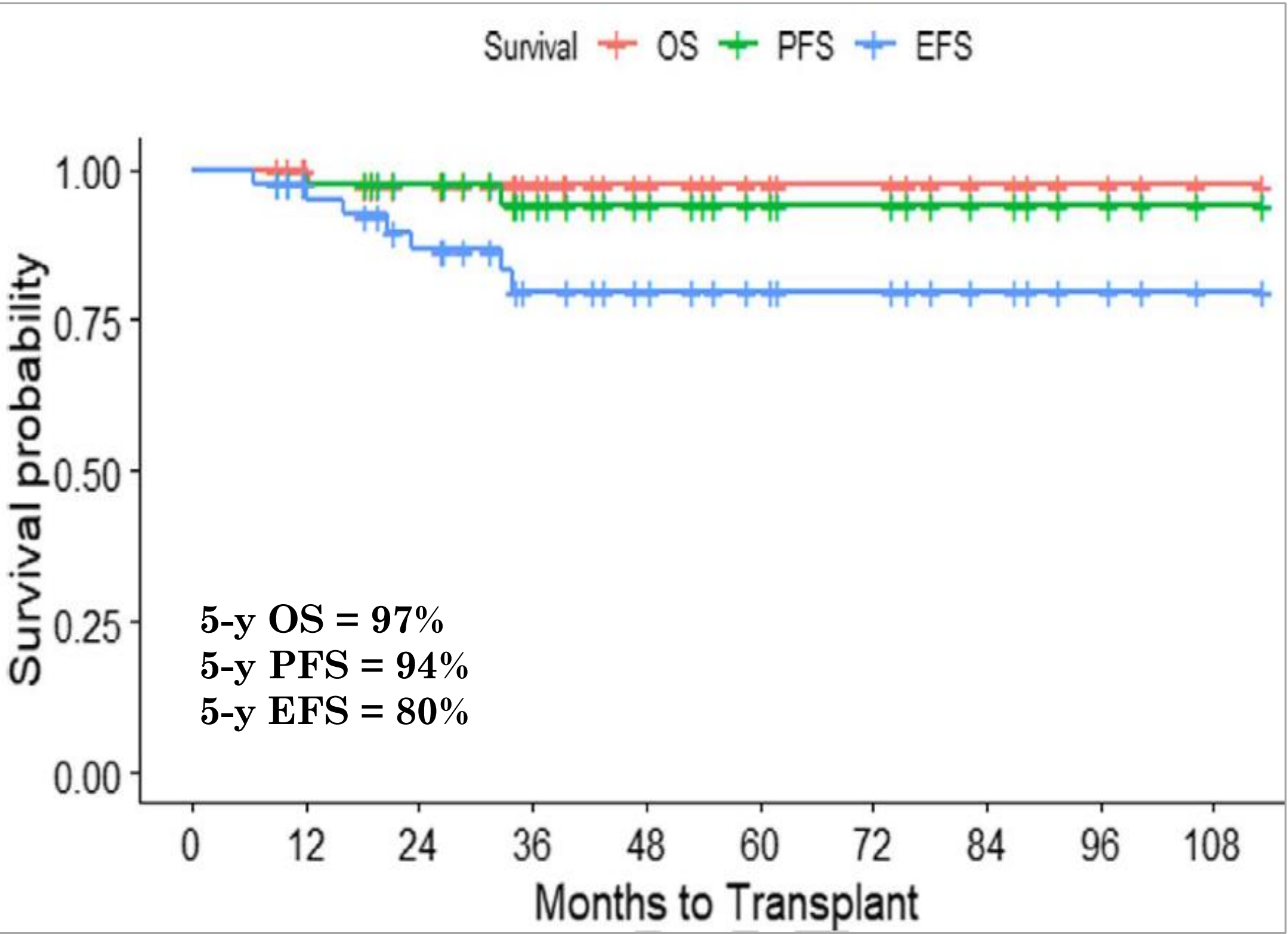
Despite the apparent efficacy and favorable toxicity profile of TKIs, allogeneic SCT remains the only curative treatment for CML especially in younger patients, but transplant related mortality should be considered. Post-transplant disease relapse was reported in 5%-20% of patients with CP and 30%-60% of those with advanced stage. So close monitoring of residual disease is essential post-transplant

Objective

This study objective was to analyze the outcome of allogeneic HSCT in children with CML treated in a single center

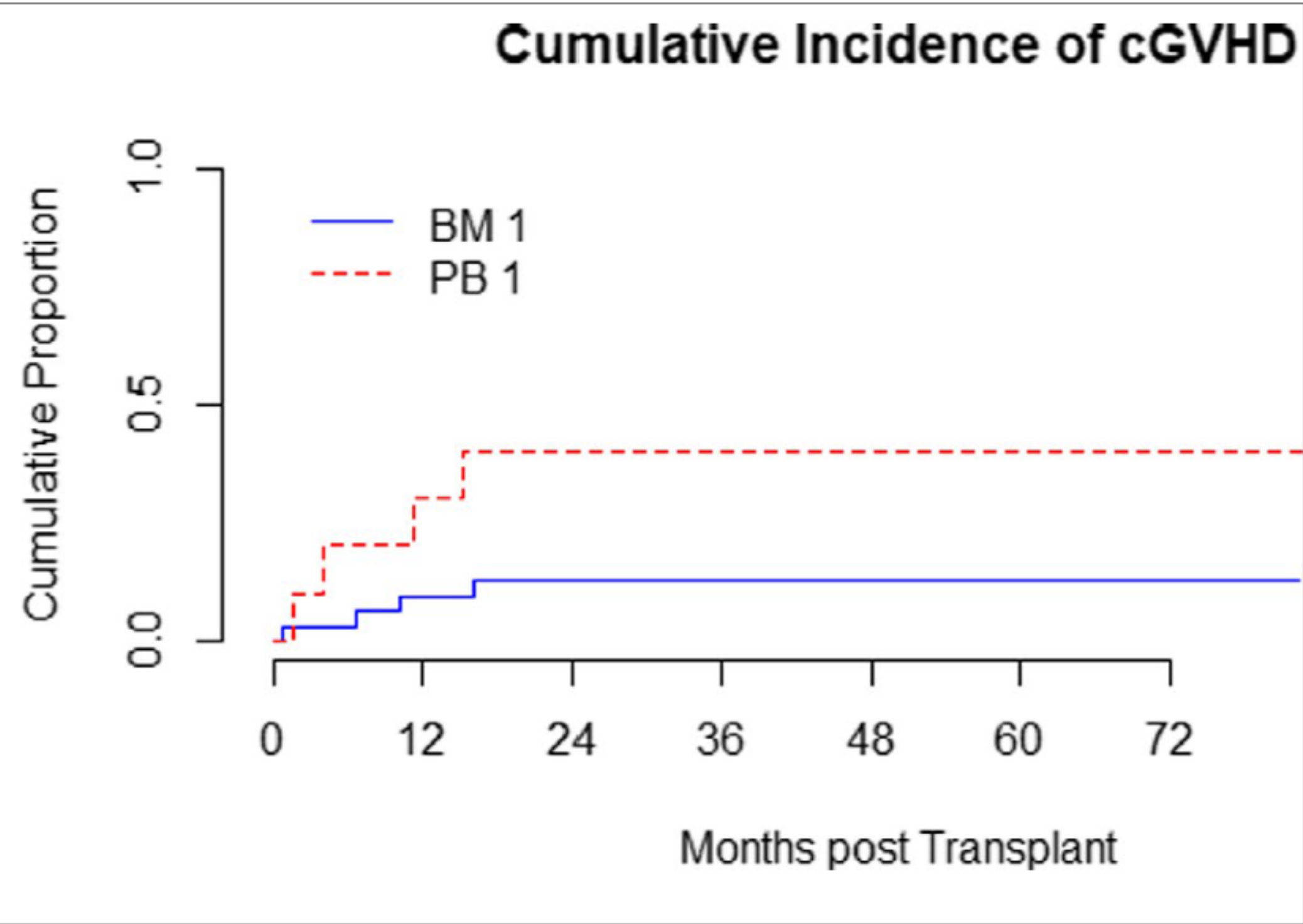
Materials & Methods

This is a retrospective study included children and adolescent patients (below 18 years) with confirmed CML, who received an allogeneic HSCT, at the stem cell transplantation unit, Children Cancer Hospital Egypt (CCHE 57357) between August 2007 and December 2017 with follow up till June 2018. All patients received Myeloablative conditioning chemotherapy containing BU/CY (Busulfan in 16 -20 mg / kg, and cyclophosphamide 4 × 50 mg / kg), with cyclosporine/short courses of MTX as GVHD prophylaxis. Patients with blastic crises received TKI therapy for one-year post HSCT



Results

Out of 121 patients with newly diagnosed CML, 43 (35.5%) had available matched related donors underwent HSCT while 78 (64.5%) were maintained on TKI therapy. The median age at diagnosis was 12 years and the median time to transplant from diagnosis was 13 months. At initial diagnosis there were 39 patients in chronic phase and 4 had blastic crises. Bone marrow harvest was used in 32 patients while 11 cases received mobilized peripheral blood stem cells with average cell dose of $4.45 \times 10^6/\text{kg}$



The probabilities of overall and event free survival at 5 years were 97.4% and 79.8% respectively. TRM at 100 days and at one-year post-HSCT were 0%. The incidence of cGVHD was significantly higher in peripheral blood than bone marrow stem cell source (P= 0.004).

Conclusions

Considering the excellent survival rates and very low TRM, HSCT is still a valid option for pediatric patients with newly diagnosed CML with best using marrow stem cell source to avoid a significant risk of cGVHD and its related complications.

References

1. Chaudhury S, Sparapani R, Hu ZH, et al. Outcomes of allogeneic hematopoietic cell transplantation in children and young adults with chronic myeloid leukemia: a CIBMTR cohort analysis. *Biol Blood Marrow Transplant.* 2016;22(6):1056-1064.
2. Lee S, Choi SY, Kim S, et al. Prognostic factors for outcomes of allogeneic stem cell transplantation in chronic phase chronic myeloid leukemia in the era of tyrosine kinase inhibitors. *Hematology.* 2014;19:63-72.
3. Gratwohl A, Pfirrmann M, Zander A, et al. Long-term outcome of patients with newly diagnosed chronic myeloid leukemia: a randomized comparison of stem cell transplantation with drug treatment. *Leukemia.* 2016;30(3):562-569.