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POSTER ABSTRACTS

612.ACUTE LYMPHOBLASTIC LEUKEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Development of a Modified Prognostic Index for Adult Patients with Acute Lymphoblastic Leukemia

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Background:Acute lymphoblastic leukemia (ALL) is associated with inferior overall survival (OS) and progression-free survival (PFS) in adults due to biologic factors and lower tolerance to chemotherapy [1,2]. Prognostic stratification is essential to guide therapy intensification and indication of allogeneic hematopoietic stem cell transplantation (allo-HSCT). Recently, a prognostic index [2] integrating measurable residual disease (MRD), white blood count (WBC) and cytogenetic/molecular subtypes has been validated in children and young adults with ALL. However, in adult patients, age, allo-HSCT, other genetic subtypes [3] and center reality, may also play role in prognosis. To incorporate new variables to the pre-established prognostic index [2], a multicenter PFS analysis was performed to develop a modified/adpated risk score.

Material and Methods: a multicenter (three Brazilian centers and the Spanish PETHEMA AR-03 trial cohort), retrospective study, reviewed medical charts and database of 398 adult patients with Ph-negative ALL (treated between 2003 and 2022), including risk variables: age, WBC count, cytogenetic/molecular classification, MRD, allo-HSCT, clinical outcomes and follow-up. The prognostic index [2] was calculated individually, then through multivariate analysis the coefficients (HR/OR) to incorporate age and allo-HSCT to the model have been determined. The methods of logistic regression, Cox model, Kaplan-Meier, log rank, ROC analysis and competitive risk regression were used in the statistical analysis. Subsequently, patients were stratified into 3 prognostic risk categories.

Results: A total of 398 patients, 77% from the PETHEMA protocol and 23% Brazilian centers; 55.2% males; mean age 38.1 years (range 18-60; 67.4% (268) B-ALL; 31.4% (125) T-ALL; 1.2% (5) biphenotypic ALL. median WBC 22.4x10 ^{9}/L; 8.9% with central nervous system involvement; 22.9% high risk cytogenetics. Regarding treatment, 93.9% (373) received pediatric-inspired protocols (AR-03, GRAALL, CALGB, St. Jude TOTALXVI), 6.1% (26) (Hypercvad and others). Regarding the response, 83.3% (309/371) achieved complete remission (CR); CR rate was higher in pediatric inspired versus other protocols: 84.6% vs 57.9% (p 0.006). 45.6% (127/278) reached MRD-neg status after induction and 71.4% (125/175) after consolidation; 21.7% (67/309) underwent allo-HSCT in first remission. After a median follow-up of 3.9 years, 4-year-OS was 42.1% (95%CI 47.2-36.8%) and PFS was 33.4% (95%CI 38.5-28.4%). Cumulative incidences of relapse and non-relapse mortality were: 38.0% and 27.6%, respectively. In multivariate analysis, both allo-HSCT (OR:0.36 95%CI 0.19-0.66 p<0.001) and original [2] prognostic index (OR:2.47 95%CI:1.71-3.55 p <0.001) predicted significantly PFS, so allo-HSCT coefficient has been determined and incorporated to the model. According to this modified prognostic index, patients were stratified into 3 risk groups: low (100/285, 35.1%), intermediate (93/285, 32.6%) and high (92/285, 32.3%) high. At 4-years, PFS was significantly superior in low-risk group (55.9% - 95% CI 65.8-44.5%) compared to the intermediate-risk group (37.3% - 95%CI 47.5-27.1%) and high-risk group (182% - 95%CI 27.0-10.8%), p <0.001.

Conclusion: The incorporation of the main risk factors in ALL and the role of allo-HSCT into prognostic index for adults can adequately stratify the PFS of patients into 3 risk categories and could assist in clinical decision-making.

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Figure 1