Abstract: P607

Title: LEUKAPHERESIS DOES NOT HAVE AN IMPACT ON EARLY MORTALITY RATE IN ACUTE MYELOID LEUKEMIA PATIENTS WITH HYPERLEUKOCYTOSIS

Abstract Type: Poster Presentation

Topic: Acute myeloid leukemia - Clinical

Background:

Hyperleukocytosis and leukostasis in acute myeloid leukemia (AML) is a hematologic emergency which requires prompt intervention. It is associated with high early mortality rate and poor outcomes. The role of leukapheresis (LA) in hyperleukocytic AML management is still highly debated.

Aims:

The aim of our study was to evaluate clinical characteristics and outcomes within 15, 30 and 90 days between patients who underwent LA and non-LA treated patients.

Methods:

A retrospective study included *de novo* AML patients >18 years, with hyperleukocytosis, defined as white blood cell (WBC) count >100x109/L, diagnosed and treated at University Clinical Centre of Serbia between 2014-2023. The patients were divided in two groups based on therapeutic approach (LA vs. non-LA). The decision to perform emergency LA was based on the presence of symptomatic disease (i.e. dyspnea, headache, visual disturbance, confusion, dizziness, somnolence, fever).

Results:

In total, 526 consecutive *de novo* AML patients were analyzed, and we identified 49 (9.3%) patients with hyperleukocytic AML, with a median age of 56 years (range, 18-81 years), and overall male predominance (M:F=1.23). Cytoreduction with hydroxyurea or cytarabine (non-LA group) was conducted in 40/49 (81.6%) patients and LA was performed in 9/49 (8.4%) patients.

Patients who underwent LA had significantly higher WBC count (median 254.2, range: 134.5-377), compared to non-LA group (median 144.8, range: 100.2-473), p=0.024. The average number of LA procedures per patient was 2.1, and the median WBC count after first LA was 177 (range, 103-229), with an average achieved WBC reduction of 39.5 percent (range, 17-63). We observed no significant difference between LA and non-LA group regarding: ECOG performance status (p=0.721), HCT-CI (p=0.681), platelet count at diagnosis (median: 46, range: 26-284 vs. median: 61, range: 14-244; p=0.487), ISTH DIC score >5 (57.1% vs. 74.2%; p=0.390), LDH >5N (66.7% vs. 50%; p=0.472), blast percentage in peripheral blood (median: 89, range: 6-100 vs. median: 76, range: 0-98; p=0.460), and bone marrow (median: 84, range: 28-96 vs. median: 76, range: 20-92; p=0.295), FLT3-ITD mutation (55.6% vs. 57.9%; p=1.00), NPM1 mutation (50% vs. 63.6%; p=0.644), CD56+ phenotype (55.6% vs. 31.6%; p=0.252), and CD11c phenotype, which was observed in all patients. Majority of patients presented with monocytic (44.4% vs. 43.2%) and myelomonocytic phenotype (33.3% vs. 43.2%), opposed to granulocytic only (22.2% vs. 13.5%), with no significant difference between the LA and non-LA group (p=0.845).

There was no significant difference in overall survival in LA and non-LA group (HR 0.942 [95% CI 0.417-2.129], p=0.885). The 15-day mortality was not significantly different in LA (33.3%) and non-LA group (25%) (HR 0.692 [95% CI 0.190-2.518], p=0.570). Similarly, there was no difference in mortality rate on day 30 (55.6% vs. 35%; HR 0.551 [95% CI 0.198-1.533], p=0.243), as well as day 90 (25% vs. 55%; HR 0.774 [95% CI 0.316-1.895], p=0.571) (Figure 1).

Summary/Conclusion:

Although LA allows rapid and efficient tumor debulking, it does not improve early mortality rate in AML

patients with hyperleukocytosis. Further studies are needed to determine subgroup of patients with hyperleukocytosis who might benefit from this procedure.

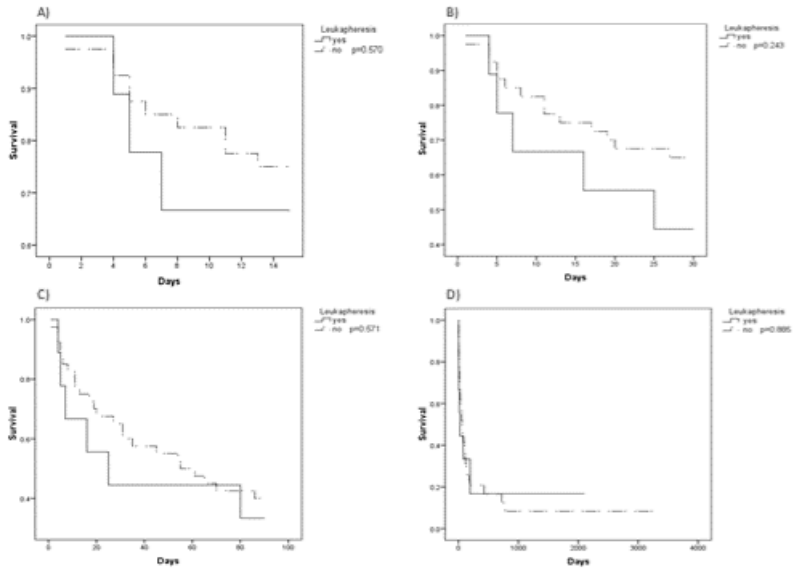

Figure 1. A) Mortality rate on day 15, B) Mortality rate on day 30, C) Mortality rate on day 90, D) Overall survival

Keywords: Acute myeloid leukemia, Survival, Leukapheresis, Hyperleukocytosis