The Outcome of Allogeneic Bone Marrow Transplantation in Primary Myelofibrosis Vs other lines of treatment

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ABSTRACT

Background: Myelofibrosis (MF) is a myeloproliferative neoplasm that presents as primary (PMF) or secondary to other myeloproliferative diseases as ET/PV referred to as secondary myelofibrosis (SMF).

Aim of the Work: In this study, we aimed to discuss the clinical outcome of patients with primary myelofibrosis who underwent allo-HSCT conditioned with fludarabine, reduced-intensity busulfan, and antithymocyte globulin (FLU/BU/ATG) compared to patients received treatment by JAK2 inhibitors and other lines of treatment and their follow up for about 2 years.

Patients and Methods: This was a retrospective compartive Study performed at Ain Shams University Hospital (El-Demerdash) and Nasser's Institute Hospital for six months to two years to collect data and follow up patients for about 2 years after transplant. This study conducted on 46 patients; 23 patients underwent Allo-SCT, and 23 patients received ruxolitinib, hydroxyurea (with or without supportive therapies including hematopoietic stimulating factors (HSFs, including erythropoietin and/or eltrombopag) or aspirin), or supportive therapies alone (collectively: "Non-Allo-SCT").

Results: Baseline Hgb $\leq$ 10 g/dl , Baseline PLT count $\leq$ 100×103/µl' showed a significantly increased risk of mortality. Baseline TLC $\leq$ 25×103/µl , JAKsV617F positive status, grade of BM fibrosis, and the DIPSS category were not associated with the risk of mortality. Patients who underwent Allo-SCT showed a trend toward higher mortality. Initial treatment or switching to ruxolitinib in non-Allo-SCT patients showed a trend towards lower mortality. For the remission phase, patients who underwent Allo-SCT had the shortest time in the "illness" state before achieving remission, death, or censorship, with an average time of 28 days, followed by ruxolitinib, with an average illness duration of 157 days. Patients who were treated with ruxolitinib had the longest time in the symptomatic free phase, with an average time of 573 days, followed by 495 days for patients who underwent Allo-SCT but the patient achieved disease remission. Patients who received hydroxyurea or HSFs only had the shortest Rmean durations of 132 and 115 days. Allo-SCT was found to be significantly associated with higher hemoglobin levels by more than 2 g/dl on averageand decrease of the splenic size throughout the study duration.

Conclusion: In the era of new novel therapies for PMF, HSCT remain the only curative option and should be considered for individuals with intermediate-2, high-risk disease. In the future should be discussed in young patients, regardless of their risk score, to leverage age, favorable performance status, and less exposure to prior therapies.

Keywords: Allogeneic Bone Marrow Transplantation, Primary Myelofibrosis