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Prognostic Impact of Pre-transplant Ferritinemia: A Survival Analysis Among Allograft Patients

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Abstract : Background and aim: Allogeneic hematopoietic stem cell transplantation is a curative treatment for several hematological diseases; however, it has a non-negligible morbidity and mortality depending on several prognostic factors, including pre-transplant hyperferritinemia. The aim of our study was to estimate the impact of hyperferritinemia on survivals and on the occurrence of post-transplant complications. Methods: It was a longitudinal study conducted over 8 years and including all patients who had a first allograft. The impact of pretransplant hyperferritinemia (ferritinemia ≥1500) on survivals was studied using the Kaplan Meier method and the COX model for uni- and multivariate analysis. The Khi-deux test and binary logistic regression were used to study the association between pretransplant ferritinemia and post-transplant complications. Results: One hundred forty patients were included with an average age of 26.6 years and a sex ratio (M/F)=1.4. Hyperferritinemia was found in 33% of patients. It had no significant impact on either overall survival (p=0.9) or event -free survival (p=0.6). In multivariate analysis, only the type of disease was independently associated with overall survival (p=0.04) and event-free survival (p=0.002). For post-allograft complications: The occurrence of early documented infections was independently associated with pretransplant hyperferritinemia (p=0.02) and the presence of acute graft versus host disease(GVHD) (p<10-3). The occurrence of acute GVHD was associated with early documented infection (p=0.002) and Cytomegalovirus reactivation (p<10-3). The occurrence of chronic GVHD was associated with the presence of Cytomegalovirus reactivation (p=0.006) and graft source (p=0.009). Conclusion: Our study showed the significant impact of pre-transplant hyperferritinemia on the occurrence of early infections but not on survivals. Early and more accurate assessment iron overload by other tests such as liver magnetic resonance imaging with initiation of chelating treatment could prevent the occurrence of such complications after transplantation.

Keywords : allogeneic, transplants, ferritin, survival
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