PEDIATRIC STEM CELL TRANSPLANTATION: AN ANGIOGENIC IN VITRO FOLLOW-UP AT A MEXICAN HOSPITAL

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Angiogenesis is an important process in hematopoietic stem cell transplantation (HSCT) for hematologic malignancies. In the quest to identify new factors for monitoring HSCT follow-up, our group reported a significant increase in blood VEGF-A concentrations during the early stages after HSCT. However, the role of angiogenesis in HSCT requires further investigation. We conducted an observational prospective study to evaluate angiogenesis through a tube formation assay during the initial period following HSCT. Forty-one pediatric patients who underwent HSCT at the Children's Hospital were enrolled in this study. Plasma was collected from venous blood on Days 0, +7, +14, +21, +28, and +35. Angiogenesis was evaluated in HUVEC cells by tube formation. After 8 hours of culture, visual fields were captured; images were analyzed with ImageJ. To assess the ability of the variables in the in vitro assay, a discriminant analysis was performed using the PAST software (Version 4.09). The Kruskal-Wallis test was conducted, followed by pairwise comparisons between days using Mann-Whitney U tests (SPSS version 25). For each patient sample, significant differences among angiogenesis on each day evaluated were considered to be $p<0.05$. We report a significant increase in angiogenic activity on day +7 and a subsequent decrease over time. These findings demonstrate the significance of quantifying tube formation in early HSCT pediatric patients.