PB2194 ISCHEMIC STROKE IN PATIENTS WITH THROMBOCYTOPENIA AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

Topic: 22. Stem cell transplantation - Clinical

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Background:

Hematopoietic stem cell transplantation (HSCT) is a critical strategy in the treatment of hematopoietic diseases, but it is not free of complications. Those occurring in the central nervous system (CNS) exhibit potential severity and poor prognosis, the most frequent being infection and hemorrhagic stroke secondary to thrombocytopenia. Up to 3% of transplant recipients develop a stroke; however, despite the relationship between thrombocytopenia and bleeding at any level, ischemic strokes have also been described in patients with thrombocytopenia.

Aims:

The aim of our study was to review the development ischemic stroke following allogeneic HSCT and to identify possible associated risk factors.

Methods:

A total of 4 patients developed ischemic stroke after allogeneic HSCT in a single center in 2019, 75% male and 25% female, aged between 43 and 70 years. Fifty percent had cardiovascular risk factors prior to transplantation (smoking, dyslipidemia, obesity and hypertension), without previous structural heart disease, arrhythmias, thrombotic or ischemic pathology. Only one patient had a positive lupus anticoagulant.

All received allogeneic HSCT from related donors (50% haploidentical, 50% identical) as consolidation treatment for malignant disease without CNS infiltration. The source of progenitors was bone marrow 50% and peripheral blood 50%. 75% were performed with reduced-intensity conditioning and 25% myeloablative. None received total body irradiation.

Results:

Seventy-five percent of the episodes took place in the immediate post-transplantation period (first 100 days), only one occurred later (day +2142). Seventy-five percent had localized ischemic stroke and 25% had cerebral diffuse microangiopathy (Fazekas 3). 75% had no graft-versus-recipient disease (GVHD) at the time of the event, whereas 25% suffered from chronic grade 3 GVHD with pulmonary, renal, and cutaneous involvement. 50% presented the episode in the setting of thrombotic microangiopathy, or suspicion of it. Only 50% were receiving immunosuppressive treatment based on calcineurin inhibitors or corticosteroids. In 75% the episode was followed by a concurrent hemorrhagic event (hemorrhagic cystitis, sublingual hematoma). Concomitant infections were detected in 50% of the patients, of which 50% presented pneumonia caused by Aspergillus spp and Respiratory Syncytial Virus, 25% bacteremia caused by S. Parasanguinis and 25% pneumococcal pneumonia. In half of the cases there was coexistence of more than one microorganism at pulmonary level. Cytomegalovirus was positivized in blood in 50% of the cases, with no evidence of proven disease.

Thrombocytopenia was present in all patients, with under 47x10⁹/L platelets in 50% and under 20x10⁹/L platelets in 25%. Hemoglobin was under 9 g/dL in 75%.

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Abstract Book Citations: Authors, Title, HemaSphere, 2022;6:(S3):pages. The individual abstract DOIs can be found at https://journals.lww.com/hemasphere/pages/default.aspx.

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In summary, the development of ischemic stroke after allogeneic HSCT is infrequent; however, there are factors that favor their appearance, such as cardiovascular risk factors prior to transplantation, treatments used and intercurrent complications, including thrombotic microangiopathy, which can cause ischemia due to induced endothelial damage. In most cases the events occur in an infectious background.

Thrombocytopenia does not in itself constitute a protective factor. In addition, long-term or acute bleeding has been related to thrombotic and ischemic phenomena. However, given the scarcity of case reports, further studies are needed to establish the relationship between allogeneic HSCT and the presence of ischemic events in CNS.