TITLE: MALDI-TOF IDENTIFICATION ON HEMATOPOIETIC STEM CELL TRANSPLANTATION IN BRAZIL: A TWO-YEAR EXPERIENCE

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ABSTRACT:

Infectious complications after transplantation of hematopoietic stem cells (HSCT) remain a clinical challenge, with blood infections being the most frequent. Mortality rates in these patients are high, particularly during the initial phase after HSCT. With the increase of isolation of multidrug-resistant bacteria (MDR), knowledge of local epidemiology is required to decide the most appropriate management protocols, in addition to the individualization of the prescription of empirical therapy for febrile neutropenia. Faster results of identification and antibiogram of microorganisms isolated in positive blood cultures are essential to optimize the antimicrobial treatment in these critical patients. In this sense, mass spectrometry technology (MALDI-TOF) proves to be a fast and precise universal method for the identification of microorganisms. The objective of this study was to evaluate the use of MALDI-TOF in the identification of microorganisms isolated from blood culture of patients submitted to HSCT, in addition to the reduction of costs and time of release of results compared to Vitek 2 at Hospital São Rafael, Salvador, Bahia. We included neutropenic patients with fever in the HSCT unit and with positive blood cultures in the period 2013 with identification in Vitek 2 (bioMerieux -Marcy l'Etoile, France) and between 2014 to 2015 with Vitek-MS identification (MALDI-TOF - bioMerieux - Marcy l'Etoile, France). The use of VITEK-MS allowed the identification of different microorganisms, at the level of genus and species, that previously only the use of traditional molecular biology could provide, besides rare agents such as E. meningoseptica and important yeast fungi, as different species of Candida and genus Trichosporon. Regarding the cost of identification, we observed a significant reduction of 86% (from U $ 4,16 to U $ 0,59), justified by the price of the inputs of Vitek MS compared to Vitek 2. The time of release of identification results Had an average reduction of 40% (40h to 24h), with greater relevance for yeast fungi that can take up to 48 hours for identification by other methodologies. The introduction of the new methodology in the identification of fungi and bacteria, besides the reduction of costs and accuracy in the identification of microorganisms, optimized the time of release of results, allowing a more precise therapy in this population, especially in those cases that rare agents are isolated and need a more specific treatment.

Keywords: MALDI-TOF, hematopoietic stem cell transplantation, bloodstream infection, multidrug-resistant bacteria

Development Agency: