

Implementation and validation of an early intervention protocol to improve outcome of treatment related complications after allogeneic stem cell transplantation

Abstract

Background: Patients undergoing allogeneic stem cell transplantation (Allo-SCT) are at high risk for treatment related mortality. In a previous study we retrospectively analysed the physiological observations during the initial admission of patients undergoing Allo-SCT and evaluated an observation based scoring system termed LEWS. Here, we could demonstrate for the first time that this system is highly predictive of in-hospital survival and overall survival post-discharge. However, despite precise detection of patients at risk, a procedure of early intervention to prevent impending deterioration is urgently needed and remains to be validated.

Project Description: The project aims at an improvement in non-relapse mortality (NRM) by defining a protocol of early intervention in patients with impending critical illness. As infection is one major cause of complication in Allo-SCT, this protocol will include elements of the early-goal directed therapy which has been shown to improve survival in sepsis patients. In addition, it will take into account Allo-SCT specific complications such as acute GvHD and sinusoidal obstruction syndrome. Four steps will be taken: Firstly, daily determination of LEWS will be implemented to prospectively identify patients at risk. Secondly, an early intervention protocol will be developed. Thirdly, this will be implemented on the Unit. An intervention period of 10 months is anticipated. Last, the outcome of patients during the intervention period will be compared to historic controls and thus the effect of standardised early intervention will be evaluated.

Impact on HSCT: Despite the high curative potential of Allo-SCT, NRM remains a major threat. If early intervention protocols help to reduce the severity of complications, this will have a positive influence on mortality of patients. Hereby, patients already selected to undergo Allo-SCT may have a better survival and patients who are not selected yet because of the high complication rate might be eligible for this potentially curative procedure.