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## Validation of the Hematopoietic Cell Transplantation-Specific Comorbidity Index: a prospective, multicenter GITMO study

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### Abstract

The development of tools for the prediction of nonrelapse mortality (NRM) after allogeneic hematopoietic stem cell transplantation (HSCT) would offer a major guidance in the therapeutic decision. Recently, the Hematopoietic Cell Transplantation-Specific Comorbidity Index (HCT-CI) has been associated with increased NRM risk in several retrospective studies, but its clinical utility has never been demonstrated prospectively in an adequately sized cohort. To this aim, we prospectively evaluated a consecutive cohort of 1937 patients receiving HSCT in Italy over 2 years. HCT-CI was strongly correlated with both 2-year NRM (14.7%, 21.3%, and 27.3% in patients having an HCT-CI score of 0, 1-2, and  $\geq 3$ , respectively) and overall survival (56.4%, 54.5%, and 41.3%, respectively). There was an excellent calibration between the predicted and observed 2-year NRM in patients having an HCT-CI score of 0 and 1-2, whereas in the  $\geq 3$  group the predicted NRM overestimated the observed NRM (41% vs 27.3%). HCT-CI alone was the strongest predictor of NRM in patients with lymphoma, myelodysplastic syndrome, and acute myeloid leukemia in first remission (*c*-statistics 0.66, 0.64, and 0.59, respectively). We confirm the clinical utility of the HCT-CI score that could also identify patients at low NRM risk possibly benefiting from an HSCT-based treatment strategy.

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