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Usefulness of sequential automated analysis of fragmented red blood cells for the differential diagnosis of thrombotic thrombocytopenic purpura-hemolytic uremic syndrome following allogeneic hematopoietic cell transplantation

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Differentiating thrombotic thrombocytopenic purpura-hemolytic uremic syndrome (TTP-HUS) from other complications following allogeneic hematopoietic cell transplantation (HPCT) requires objective, reliable markers. To this purpose, we assessed the clinical usefulness of sequential quantified analysis of fragmented red blood cells (FRC) with the Sysmex XE-2100 automated hematology analyzer. The correlation between manual and automated counting was significant ($r = 0.917$; $P < .0001$). Of 25 cases, the peak FRC percentage (FRC%) exceeded 1.3% after allogeneic HPCT in 11 cases, and lactate dehydrogenase levels were elevated in 5 of these 11 cases. Two patients received diagnoses of TTP-HUS following allogeneic HPCT, and both had initial diagnoses of acute graft-versus-host disease. In both cases, the sharp increase in the FRC% to >3% simultaneously with clinical exacerbation was helpful for differentiating TTP-HUS following allogeneic HPCT from other complications. We conclude that FRC% data sequentially obtained by an automated count seem to be useful as an objective marker of TTP-HUS following allogeneic HPCT