

¹⁸FLT-PET/CT Imaging of Marrow Transplantation Differentiates Ablation from Recovery.

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Background: Marrow failure is associated with significant mortality. Marrow heterogeneity leads to diagnostic difficulty. Treatment varies depending on cause, from supportive care to transplantation. Rapid identification of cause could improve outcomes.

Methods: We imaged 17 patients with ¹⁸F-fluorothymidine(FLT)PET/CT at early points prior to clinical marrow recovery. We developed an automatic computer vision algorithm to fuse PET and CT data and extract FLT SUV. We compared uptake at myeloablation, early recovery, and reconstitution.

Results: FLT can differentiate early engraftment, myeloablation and reconstitution. FLT can quantify early marrow repopulation.

Discussion and Conclusion: FLT can enhance clinical assessment and treatment planning for marrow failure. FLT can be used to direct novel therapies, identify marrow damage/aplasia, and improve outcomes.

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