

## **Late cardiovascular complications after hematopoietic cell transplantation**

Chow EJ, Wong K, Lee SJ, Cushing-Haugen KL, Flowers ME, Friedman DL, Leisenring WM, Martin PJ, Mueller BA, Baker KS.

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(Survey administered July 2010 – June 2011)

This research investigates the long-term cardiovascular risks in patients who underwent hematopoietic cell transplantation (HCT). Over 60,000 patients worldwide undergo this procedure annually, but chronic graft versus host disease (GVHD), disease recurrence, and cardiovascular issues pose significant threats to survivors. The study aims to understand the influence of pre-transplant therapeutic exposures, cardiovascular risk factors, and post-transplant factors on the risk of ischemic heart disease, cardiomyopathy, heart failure, stroke, and all-cause cardiovascular death in HCT survivors who live at least 2 years after the HCT.

The researchers conducted a study involving 1,379 HCT survivors from Washington State. 57.2% of these survivors received an allogeneic transplant, and 48.9% received total body irradiation (TBI) for transplant conditioning. The researchers examined pre-transplant exposures (anthracyclines, radiotherapy, smoking history, and baseline medication use), post-transplant exposures (immunosuppressive therapy, obesity at 1-year post-HCT, and medication use for hypertension, dyslipidemia, and diabetes), and subsequent problems (ischemic heart disease, cardiomyopathy, heart failure, stroke, and cardiovascular death). Overall, almost 10% of survivors experienced at least 1 serious cardiovascular complication.

Results revealed that increased anthracycline dose correlated with cardiomyopathy, while active chronic GVHD was associated with an elevated risk of cardiovascular death. After controlling for pre-transplant exposures and chronic GVHD, there was no difference between autologous and allogeneic transplant recipients in this study. Pre-transplant cardiovascular risk factors (smoking, obesity, hypertension, diabetes) were associated with increased risks for subsequent cardiovascular complications, emphasizing the continued influence of conventional risk factors in HCT survivors. The study recommends early screening and intervention for at-risk patients to improve long-term outcomes.