

## Prevalence of Post-Heart Transplant Malignancies: A Systematic Review and Meta-Analysis

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### Abstract

**Background:** The prevalence of different cancers after heart transplant (HT) is unclear due to small and conflicting prior studies. Herein, we report a systematic review and meta-analysis to highlight the prevalence and pattern of malignancies post HT. **Methods:** We conducted an extensive literature search on PubMed, Scopus, Cochrane databases for prospective or retrospective studies reporting malignancies after HT. The proportions from each study were subjected to random effects model that yielded the pooled estimate with 95% confidence intervals (CI). **Results:** Fifty-five studies comprising 60,684 HT recipients reported 7,759 total cancers during a mean follow-up of  $9.8 \pm 5.9$  years, with an overall incidence of 15.3% (95% CI = 12.7% - 18.1%). Mean time from HT to cancer diagnosis was  $5.1 \pm 4$  years. The most frequent cancers were gastrointestinal (7.6%), skin (5.7%) and hematologic/blood (2.5%). Meta-regression showed no association between incidence of cancer and mean age at HT (coeff: -0.008; p=0.25), percentage of male recipients (coeff: -0.001; p=0.81), donor age (coeff: -0.011; p=0.44), 5-year (coeff: 0.003; p=0.12) and 10-year (coeff: 0.02; p=0.68) post-transplant survival. **Conclusion:** There is a substantial risk of malignancies in HT recipients, most marked for gastrointestinal, skin and hematologic. Despite their occurrence, survival is not significantly impacted.