Increased-Risk Versus Standard-Risk Donation in Lung Transplantation

Objective: Donors with characteristics that increase risk of HBV, HCV, and HIV transmission are deemed increased-risk donors (IRD) per 2013 Public Health Service guidelines. Compared to organs from standard-risk donors (SRDs), IRD organs are often declined and used at much lower rates. Concerns due to the IRD label may result in underutilization of viable organs and worsened waitlist mortality. In this study, we sought to investigate the outcomes of lung transplant recipients who received IRD allografts following the PHS guideline change.

Methods: We retrospectively identified lung transplant recipients from the United Network of Organ Sharing registry (February 2014 to March 2020). Patients were divided into 2 cohorts, based on CDC blood-borne pathogen risk status of the donor: SRD or IRD. Demographics and clinical parameters were compared across donor age groups. Survival was compared using Kaplan-Meier curves and log-rank tests. Cox proportional hazard model was performed to identify variables associated with survival outcome. P-values <0.05 were considered significant.

Results: We identified 13,890 lung transplant recipients, 10,506 who received allografts from SRDs and 3,384 who received allografts from IRDs. IRDs showed a notable young age distribution, with 2663 (79%) being under 40 and only 244 (7.2%) over 50. Comparatively, 6197 SRDs (60%) were under 40 and 2410 SRDs (23%) were over 50. IRDs also demonstrated a lower median BMI and higher median height. IRDs were associated with increased alcohol, cigarette, cocaine, and other drug use, while SRDs had an increased history of cancer, hypertension, myocardial infarction, and diabetes. There was no significant difference in type of transplant (single versus double lung), lung allocation score, or length of stay between SRD and IRD transplantations. Survival analysis showed no significant difference in 90 day, 1-year, 3-year, or 5-year survival (p=0.410, 0=0.681, p=0.395, p=0.469, respectively). Cox regression demonstrated that single-lung transplants were associated with 18% increased mortality risk compared to double-lung (p<0.0001).

Conclusions: Recipients of SRD and IRD organs showed equivalent survival outcomes following lung transplantation. Compared to SRDs, IRDs were generally younger and had fewer underlying conditions. Our findings suggest that IRD lung transplantation may offer a safe and valuable option for improving organ shortages.

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Figure 1. Kaplan-Meier curve showing no difference in 5-year survival ($p=0.469$) between recipients of standard-risk and increased-risk donors.