Should We Wait Until the Morning?

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We read with great interest the article by Kim et al. that evaluated the outcomes of delayed-to-morning lung transplantations that would’ve otherwise occurred overnight. Their single institution analysis identified 34 patients whose donor cross-clamp times occurred between 1:30 AM and 5 AM, but who were consented to delay the recipient procedure until 6:30 AM (Night). When compared to 68 propensity score-matched patients whose organ procurement and transplant occurred at all other times (Day), they found comparable 30-day mortality (3% vs 3%, p=0.99), postoperative complications (26% vs. 38%, p=0.28), 3-year survival (70% vs. 77%, p=0.3), and freedom from chronic lung allograft dysfunction (CLAD) (91% v. 95%, p=0.75).

This study highlights several points to consider in building and optimizing a high-volume, successful lung transplant program. First, the Night donors experienced longer cold ischemic times (5.7 vs. 4.75 hours, p<0.01), though this is likely clinically insignificant. Notably, all donor organ recovery was performed with standard cold, static storage at 4°C. However, recent evidence demonstrates that 10°C is a more optimal temperature for donor lung preservation. This may allow for even greater increases in cold ischemia times up to 12.47 and 14.15 hours for the first and second lung respectively with comparable short-term outcomes. However, the impact of 10°C static storage on CLAD warrants further investigation.

Second, we should consider the impact of delaying lung transplants on elective cases. The advantages of delayed-to-morning lung transplant may come at the cost of cancelling or delaying previously scheduled cases, requiring considerable coordination between day-time staff, procurement team, and both donor and recipient families. There’s much to be learned as to the logistics undertook to accommodate these changes in procedures that are otherwise highly unpredictable in nature. Finally, surveyed feedback from physicians and their team would be helpful to better gauge the impact of these schedule changes on their mental and physical health, circadian rhythm, and perceived ability to perform. Similarly, a comprehensive cost analysis should also be conducted, akin to those by Yang et al. Here, Kim and colleagues presented promising evidence that lung transplants with donor cross-clamping overnight may be adequately delayed until the morning, highlighting possible avenues to improve patient outcomes, and reduce team fatigue and burnout.
