Prolonged Waiting Times for Status 2 Patients in New UNOS Allocation System: Impact on Waitlist and Post-transplant Outcomes

Objective: Since the heart transplant allocation policy change was implemented in 2018, there has been a rapid increase in temporary mechanical circulatory support (tMCS) for Status 2 patients. We sought to examine the temporal pattern of waitlist and post-transplant outcomes for Status 2 patients.

Methods: Adult patients in the UNOS registry who received a Status 2 designation from October 2018-June 2022 were included. Temporal trends in waitlist time and tMCS device usage were assessed using linear and multinomial regression. Probability of transplant and waitlist death was calculated using cumulative incidence functions and compared over time using Grays test. Multivariable logistic regression was performed to identify risk factors for post-transplant 30-day mortality.

Results: 6478 patients were included. From 2018-2022, the number of patients listed with Status 2 designation increased from 2.2 to 5.5 patients per day. While the proportion of patients with IABP decreased, Impella device at Status 2 listing increased over time (OR 1.43, 95%CI 1.34-1.54, p<0.001). During the study period, there was an increase in median waitlist time (14 days vs 23 days, p<0.001) as well as Status 2 days (7 days vs 12 days, p<0.001). This trend was seen in all but UNOS Region 6. Waitlist mortality remained stable (2.3%), however probability of transplant within 30-days of Status 2 listing progressively declined from 2019-2022 (OR 0.601, 95%CI 0.55-0.66, p<0.001). The proportion of Status 2 patients upgraded to Status 1 was stable, however probability of upgrading to Status 1 with exception criteria increased (25% vs 57%, OR 1.42, 95%CI 1.19-1.70, p<0.001). For patients at Status 1, waitlist mortality and transplant probability remained stable, as did post-transplant mortality. However, the overall cause of post-transplant death changed, as the proportion of infection-related mortality after transplant significantly increased from 2018-2022 (5% vs 32%, OR 9.5, 95%CI 1.12-81.35, p=0.04). Finally, waitlist duration was found to be an independent predictor of 30-day mortality after transplant (OR 1.007, 95%CI 1.001-1.012, p=0.02).

Conclusion: Since the allocation policy change there has been a steady rise in the number of patients listed for Status 2, along with an increase in waitlist duration. Prolonged waitlist duration is an independent predictor of mortality post-transplant and may contribute to the increased incidence of infection-related mortality after transplant.

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Figure 1. Probability of transplantation and death or de-listing after Status 2 listing, compared by year of listing.

Transplantation
2022 vs 2019: HR 0.605, 95%CI .554-.661, p < 0.001

Death or De-listing
2022 vs 2019: HR .755, 95%CI .517-1.103, p = 0.15