Post-transplantation outcomes of sensitized mechanical circulatory support patients

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Background: Sensitization, defined as the presence of circulating antibodies, presents challenges, particularly in patients undergoing heart transplantation (HTx) bridged with durable mechanical circulatory support (MCS). We aimed to investigate the post-transplantation outcomes of sensitized MCS patients.

Methods: Among 889 consecutively enrolled HTx recipients between 2010 and 2018 in Cedars-Sinai Medical Center, 86 sensitized MCS patients (9.7%, group A) were compared with sensitized non-MCS patients (group B, n=189), non-sensitized MCS patients (group C, n=162), and non-sensitized non-MCS patients (group D, n=452) regarding post-HTx outcomes, including the incidence of primary graft dysfunction (PGD), 1-year survival, and 1-year freedom from antibody-mediated rejection (AMR).

Results: Sensitized MCS patients (group A) showed comparable rates of PGD, 1-year survival, and 1-year freedom from AMR with groups C and D. However, group A showed significantly higher rates of 1-year freedom from AMR (95.3% vs. 85.7%, $P=0.02$) and an earlier decline in panel-reactive antibody (PRA) levels ($P<0.01$) than sensitized non-MCS patients (group B). Desensitization therapy effectively reduced the levels of PRA in both groups A and B. When group A was further divided according to the presence of preformed donor-specific antibodies (DSA), patients with preformed DSA showed significantly lower rates of 1-year freedom from AMR than those without (84.2% vs. 98.5%, $P=0.01$).

Conclusions: Sensitized MCS patients showed significantly lower rates of AMR and an earlier decline in PRA levels following HTx than sensitized non-MCS patients. Removal of MCS at the time of transplantation might underlie these observations.

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