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Impacts of pre-transplant panel-reactive antibody on post-transplantation outcomes: A study of nationwide heart transplant registry data

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Introduction: The number of sensitized heart failure (HF) patients on waiting lists for heart transplantation (HTx) is increasing. We investigated the prevalence and clinical impact of calculated panel-reactive antibody (cPRA) in patients undergoing HTx using the Korean Organ Transplantation Registry (KOTRY), a nation-wide multicenter database.

Methods: We retrospectively reviewed 813 patients who underwent HTx between 2014 and 2021. Patients were grouped according to peak PRA level as Group A: patients with cPRA <10% (n= 492); group B: patients with cPRA ≥10%, < 50% (n=160); group C patients with cPRA ≥ 50% (n=161). Post-HTx outcomes were freedom from antibody-mediated rejection (AMR), any treated rejection (ATR), acute cellular rejection, coronary allograft vasculopathy (CAV), and all-cause mortality.

Results: The median follow up duration was 44 [19-72] months. Female sex, re-transplantation, and pre-HTx renal replacement therapy were independently associated with increased risk of sensitization (cPRA ≥50%). Group C patients were more likely to have longer hospital stay and to use anti-thymocyte globulin as an induction agent compared to groups B and C. Significantly more patients in group C had positive flow-cytometric crossmatch, and had higher incidence of preformed donor-specific antibody compared to groups A and B. During follow up, group C had significantly lower rates of freedom from AMR, but the overall survival rate was comparable with those of groups A and B.

Conclusion: Patients with cPRA ≥50% had significantly higher incidence of preformed DSA and lower freedom from AMR but post-HTx survival rates were similar to those with cPRA < 50%.