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# Preexisting nonhuman leukocyte antigen antibodies are associated with allograft rejection after thoracic transplantation

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There is growing evidence of an important role of non-human leukocyte antigen (HLA) antibodies in lung and heart transplant rejection. However, data on the prevalence and clinical significance of non-HLA antibodies in the Asian population are scarce. We used a Luminex machine to measure non-HLA antibodies in patients who underwent heart (N=28) or lung transplantation (N=36) between 2016 and 2019. We evaluated the association between pre-existing non-HLA antibodies and acute rejection-free days in heart and lung transplant recipients. Of the 64 patients, acute allograft rejection occurred in 27 (42.2%). Acute cellular rejection occurred in 26 patients (40.6%), and acute antibody-mediated rejection occurred in 1 patient (1.6%). Among 33 non-HLA antibodies, only the anti-glutathione S-transferase theta-1 (GSTT1) antibody positive rate was significantly higher in the acute rejection group compared to the no rejection group (40.7% vs. 13.5%, p = 0.013). The angiotensin II type I receptor (AT1R) positive rate was not significantly different between the two groups (40% vs 18.5%, p = 0.129). In the multivariate Cox regression analysis, anti-GSTT1 antibody-positive patients had a higher risk of acute allograft rejection (hazard ratio 3.77; 95% confidence interval [CI] 1.3410.63; p = 0.012). The Kaplan-Meier curve showed that anti-GSTT1 antibody-positive patients had fewer acute rejection-free days (2 = 5.50; p = 0.019). In addition, patients who underwent packed red cell transfusion (odds ratio [OR] 1.30; 95% CI 1.071.57; p = 0.007) or mechanical ventilation (OR 20.83; 95% CI 2.49173.97; p = 0.005) before transplantation were more likely to be positive for anti-GSTT1 antibody. Patients with antibodies against GSTT1 before heart or lung transplantation had an increased risk of acute rejection.