



Impact of Severe Pulmonary Hypertension on Right Heart Hemodynamics and Outcomes Following Cardiac Transplantation: A Single Center Experience

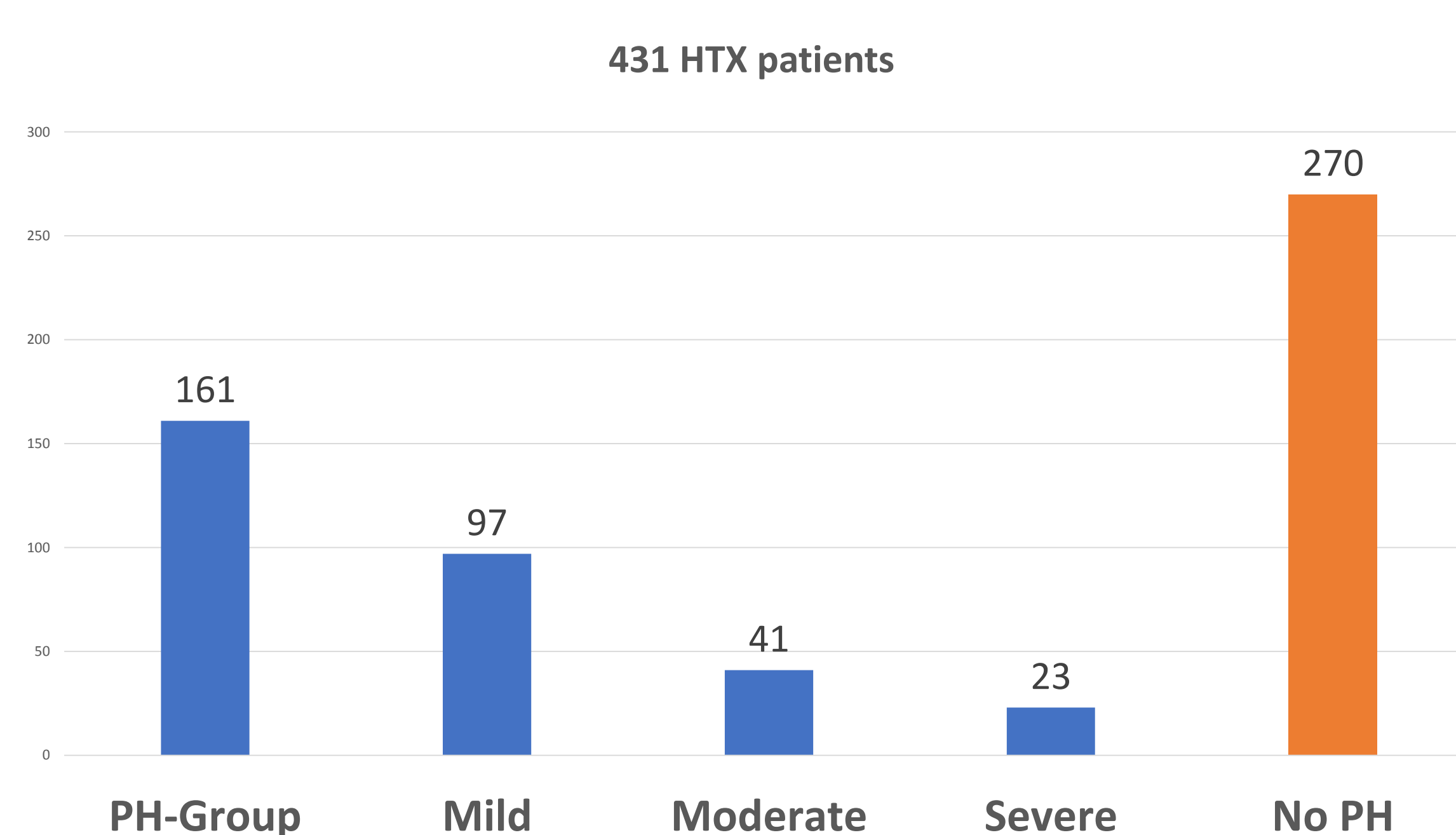
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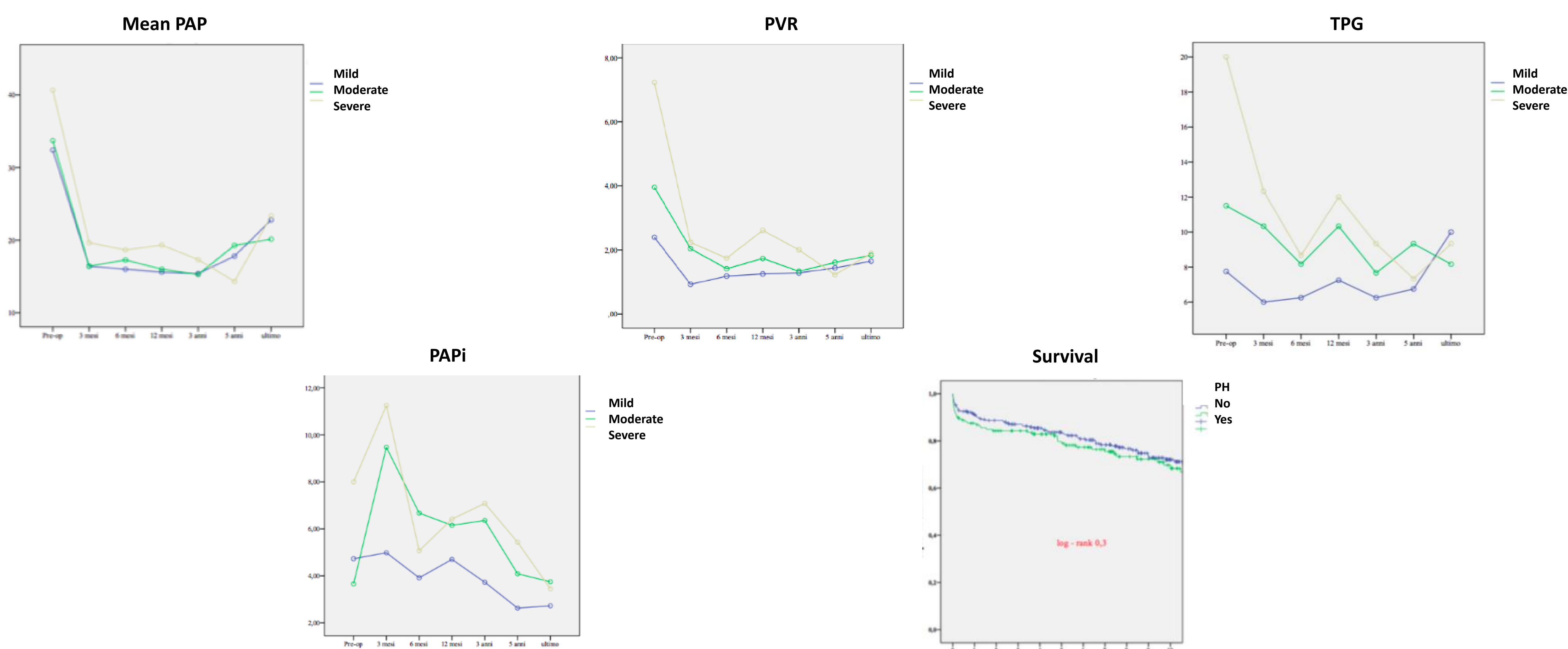
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Purpose. Pulmonary hypertension (PH) is common in severe heart failure. The prognostic impact of PH is debated as well as the trend of pulmonary hemodynamic variables after heart transplantation (HTx). We investigated the impact of preoperative PH on postoperative survival and on the evolution of right heart hemodynamics (RHH) after HTx.

Methods. We reviewed the records of 431 consecutive HTx recipients, divided in a non-PH group (270 pts) and a PH group (161 pts). PH was defined as pulmonary vascular resistance ≥ 2.5 Wood units (WU) at right heart catheterization: mild (97 pts; PVR: 2.5-3.4WU), moderate (41 pts; PVR: 3.5-4.9WU) and severe PH (23 pts; PVR ≥ 5.0 WU). RHH [systolic/mean/diastolic pulmonary artery-systolic-pressure (PAP), pulmonary-capillary-wedge-pressure (PCWP), transpulmonary gradient (TPG), cardiac output (CO), pulmonary vascular resistance (PVR), pulmonary-arterial-pulsatility-index (PAPi) and right-ventricle-stroke-work-index (RVSWI)] were measured before HTX and 3, 6, 12 months, 3, 5 years after HTX. Survival analysis was conducted using Kaplan-Meier curves.



Results. Preoperatively, patients with severe PH had significantly ($P < 0.001$) higher mean PAP (64.5/42.2/28.8 vs. 48.6/32.6/21.8mmHg), TPG (16.8 vs. 9.9mmHg), PVR (6.1 vs. 3.2WU) and RVSWI (568.4 vs. 428.9) than patients with mild/moderate PH. After HTx, the PH-group had a higher incidence of graft dysfunction (20.5 vs. 14.8%; $P = 0.01$), right ventricular failure (9.3 vs. 4.8%; $P = 0.03$), ECMO (10 vs. 5.1%; $P = 0.01$), ICU stay (8.4 vs. 6.8 day; $P = 0.02$) than non-PH patients. These parameters didn't differ significantly among the three PH-groups. In-hospital mortality was 10.6% in PH-patients (15.8% vs. 9.9% in severe vs. mild/moderate PH; $P = 0.04$) vs. 6.3% in non-PH group ($P = 0.01$). Ten-years survival rates were 70% in PH-patients (71% in severe PH) vs. 72% in non-PH patients. RHH improved early after HTx, without significant differences between severe PH and mild/moderate PH [PAP (30.1/19.4/10.9 vs. 26.8/17.3/9.8mmHg), TPG (10.9 vs. 8.5mmHg), PVR (1.8 vs. 1.5WU) and RVSWI (506.1 vs. 470.9) but slightly worsened after 3-5 years.



Conclusions. Pre-transplant PH is an independent predictor of early mortality after HTx, not affecting long-term survival even when severe. After an early significant improvement of RHH, mean PAP, TPG and PVR increase while CO, PAPI and RVSWI decrease during follow-up. A rigorous monitoring of RHH must be scheduled during FU.

The authors of this poster have nothing to disclose