

BACKGROUND

The use and outcomes of pulmonary hypertension (PH) target therapy in patients with PH who undergo heart transplant (HT) is not well characterized.⁽¹⁻³⁾ The objective of this study was to compare post-HT cardiac catheterization findings in patients with congenital heart disease (CHD) with and without PH.

HYPOTHESIS

Pediatric patients with CHD and pre-HT PH who undergo HT have normalization of their PVR by 6 months post-HT.

METHODS

Type of Study: Retrospective Cohort Study

Population:

- All patients with a diagnosis of CHD who underwent HT at Texas Children's Hospital from 2014-2020.
- PH was defined as pre-existing PH target therapy use or PVRi ≥ 3 in cardiac cath within 12 months prior to HT.

Statistical Analysis:

- Chi-square and Fisher exact test analysis were used for association analyses between categorical data.
- Comparisons of continuous variables were analyzed using Mann-Whitney U test.
- Cardiac catheterization timing relationship to HT was divided by the following phases:
 - **-2:** (-12 to -6 months pre-HT)
 - **-1:** (-5.9 to 0 months pre-HT)
 - **0:** (+2 weeks to +2 months post-HT)
 - **1:** (+2.1 to +4.9 months post-HT)
 - **2:** (+5 to +8.9 months post-HT)
 - **3:** (+9 to +13 months post-HT)

RESULTS

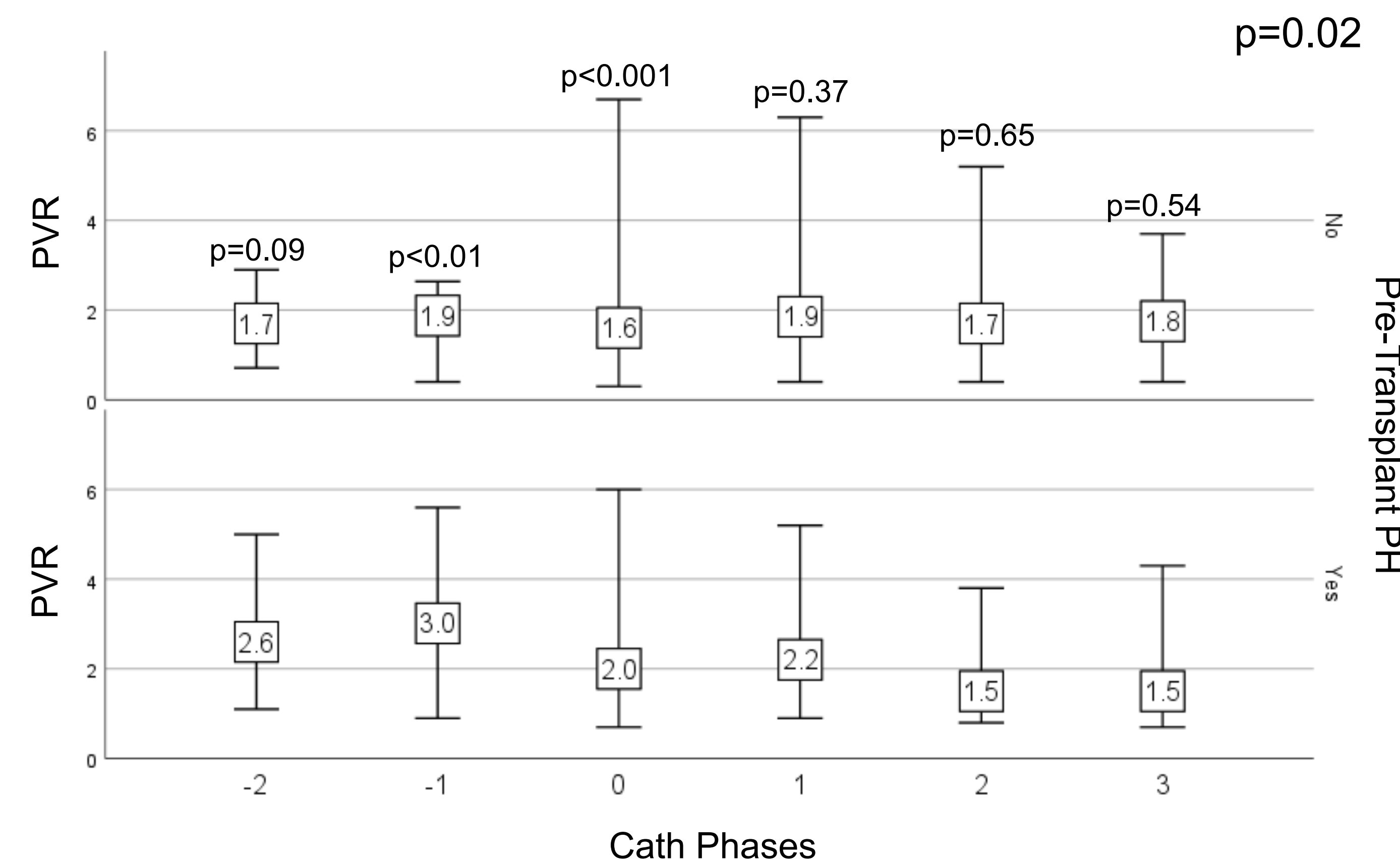
- There were no difference in mPAP, transpulmonary gradient (TPG) or LV end-diastolic pressure when comparing patients with and w/o PH by phases.

PATIENT CHARACTERISTICS

	PH (n=28)	No-PH (n=43)	p value
HT age in months, median (IQR)	118 (40-167)	13 (5-66)	<0.001
Male, n (%)	17 (61)	29 (67)	0.56
H/o prematurity, n (%)	2 (7)	5 (12)	0.7
Single Ventricular (SV) Anatomy	24 (86)	29 (67)	0.006
HT age in months SV, median (IQR)	105 (21-150)	13 (7-63)	0.003
HT age in months BiV, median (IQR)	181 (84-207)	11 (4-117)	0.03
VAD, n (%)	13 (46)	5 (12)	<0.001

RESULTS

Figure 1: Median, minimum and Maximum PVRi trend in patients w and w/o PH by phases



RESULTS

- Pre-HT PH patients had higher mean pulmonary artery pressure (mPAP) at phase -1, (median, PH vs. No-PH: 18 vs. 13mmHg, p=0.01), and higher PVRi on phase -1 and 0 (*Figure 1*).

RESULTS

Figure 2: Median, minimum and Maximum PVRi trend in patients w and w/o PH target therapy use pre-HT by phases

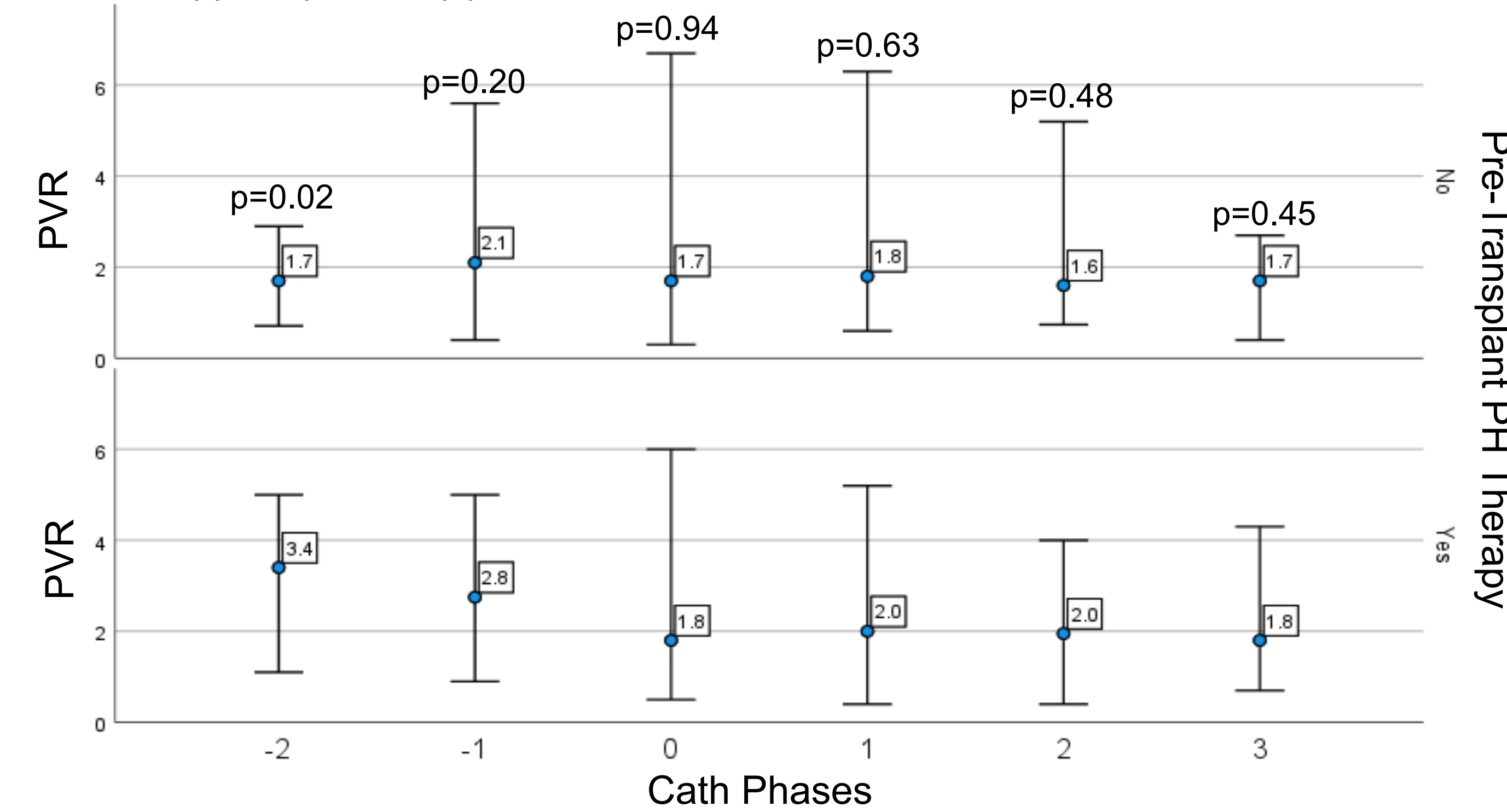
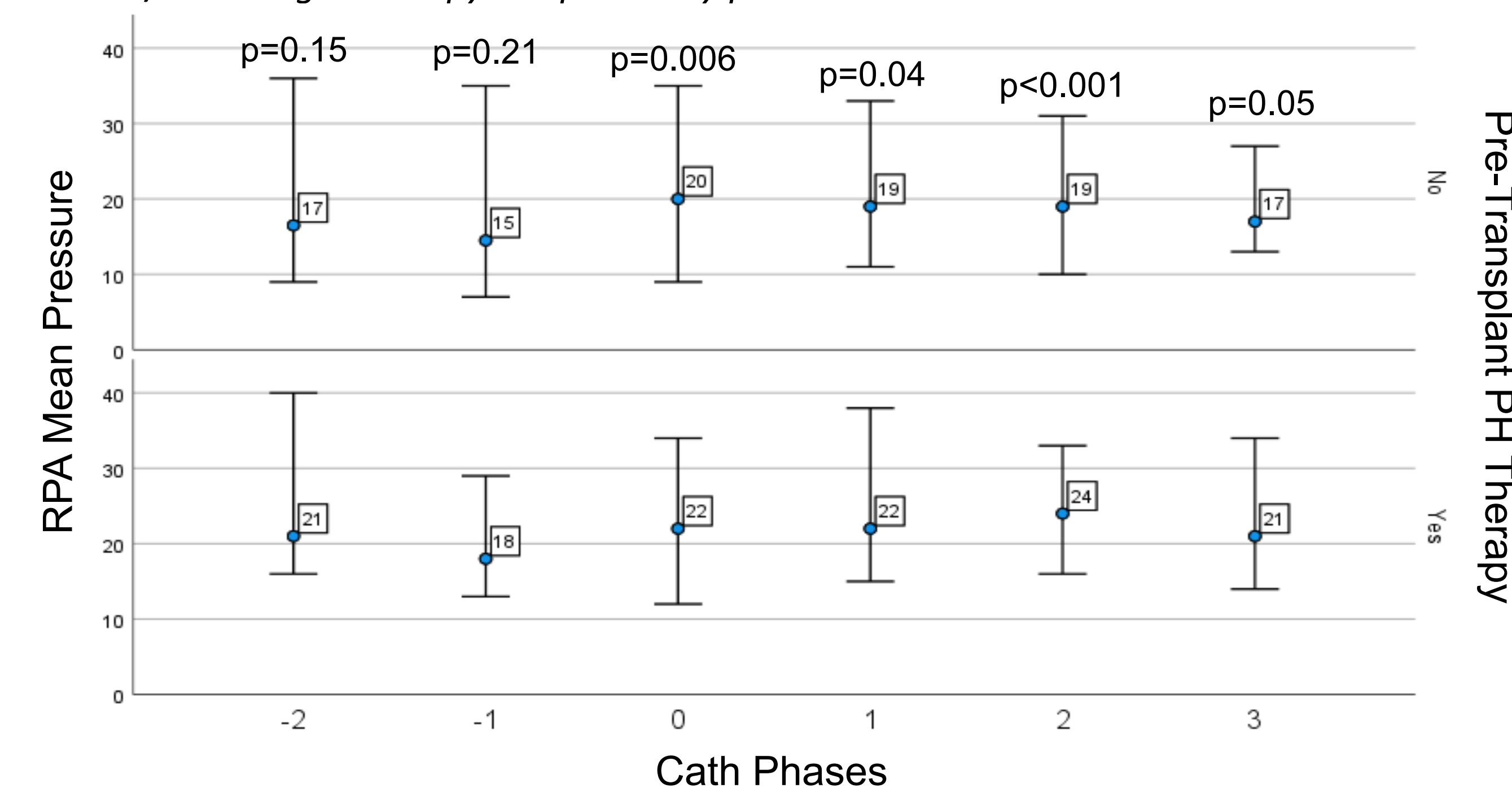


Figure 3: Median, minimum and Maximum mRPA pressure trend in patients w and w/o PH target therapy use pre-HT by phases



RESULTS

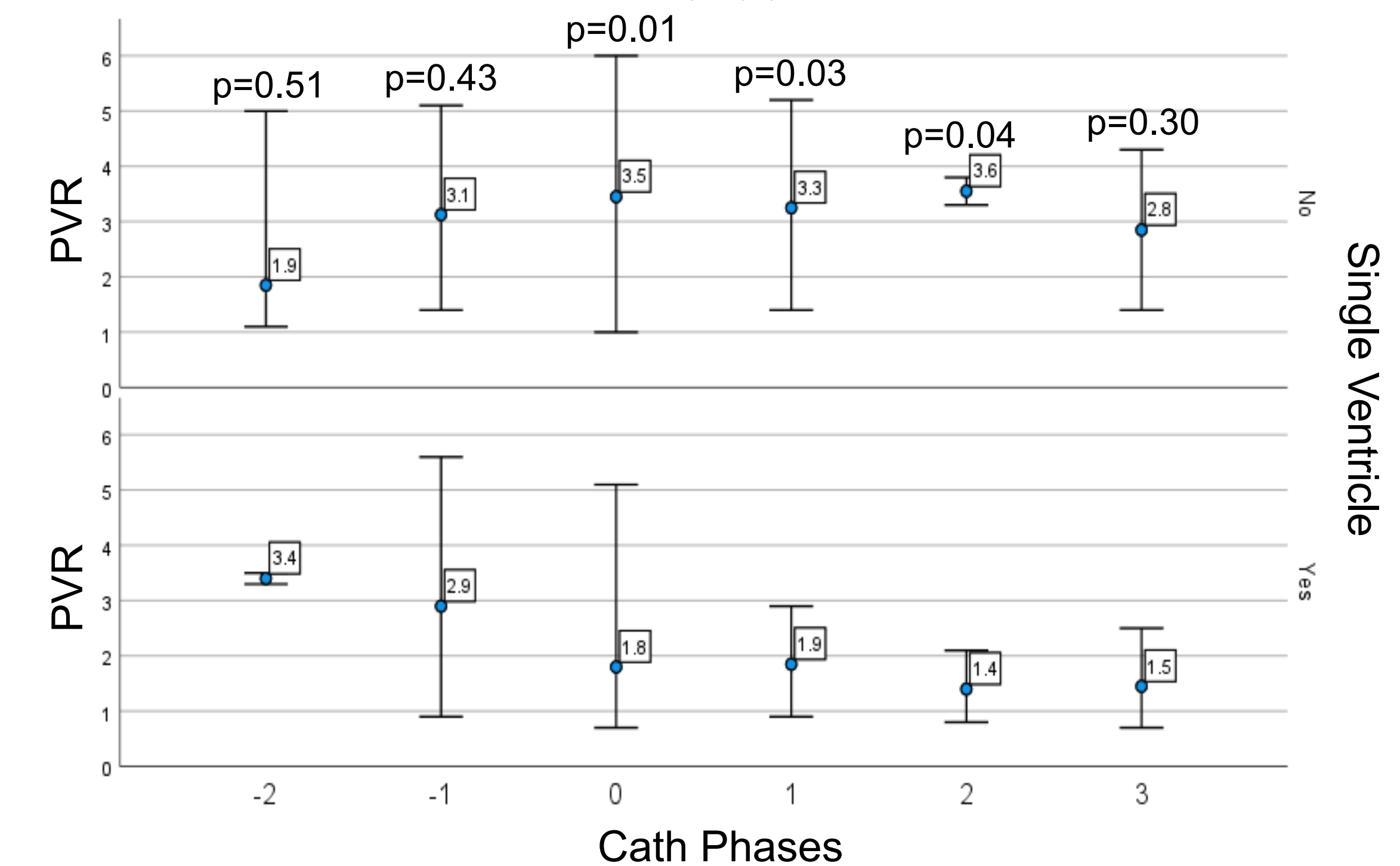
- When comparing hemodynamic cath data in those who received PH therapy vs. not, there were no difference in PVRi (*Figure 2*), TPG, or LVEDP, but there was a difference of higher mean RPA pressure on the post-HT period, (*Figure 3*).
- Patients with Pre-HT PH and biventricular (BiV) anatomy, had higher PVRi from phase 0 to 2 in the post-HT period, compared to SV patients, (*Figure 4*). There were no other hemodynamic differences when comparing these two groups.

DISCLOSURES

Authors have nothing to disclose.

RESULTS

Figure 4: Median, minimum and Maximum PVRi trend in patients w pre-HT PH with SV or Biventricular anatomy by phases



CONCLUSIONS

- Pediatric patients with CHD (with SV or BiV anatomy) and Pre-HT PH are transplanted at older age.
- PVRi remains elevated for the first 3 months post-HT in pre-HT PH patients, and then show no difference than No-PH patients. There is no difference in other hemodynamics.
- Patients treated with PH target therapy have similar post-HT cardiac catheterization findings compared to those who did not use/require it.
- Transplanted BiV patients with pre-HT PH have an elevated PVRi that continues until 6 months post HT and drops slower than their SV PH counterparts.

LIMITATIONS

- Not all patient get cardiac catheterization data pre-HT.
- Empiric initiation of PH target therapy.
- Selection bias of only including those who's PVR was not a contraindication for HT.

REFERENCES

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