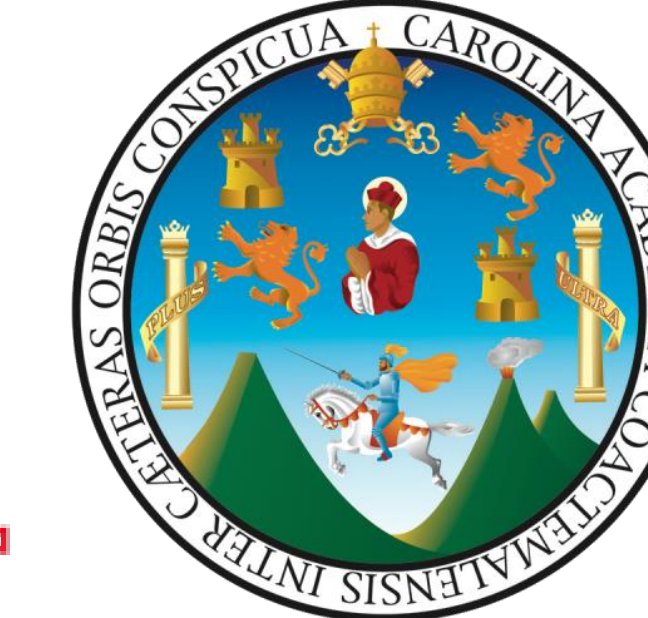




# Results of percutaneous balloon valvuloplasty for pulmonary valve stenosis in Guatemala



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## Background and Objectives

Percutaneous balloon pulmonary valvuloplasty (PBPV) has replaced surgery and is the gold standard as the initial intervention for patients with moderate to severe pulmonary valve stenosis (PVS).

Despite the limited resources in Guatemala, PBPV is the primary treatment for PVS at Unidad de Cirugía Cardiovascular de Guatemala (UNICAR). We sought to analyze the results of PBPV in a limited resource country.

## Methods

We conducted a retrospective chart review of all patients who underwent cardiac catheterization from January 2006 to December 2019 and identified those who underwent PBPV. Patients with concomitant major cardiac defects and incomplete medical records were excluded. Hemodynamic data from PBPV catheterization, and clinical and echocardiographic data before and after PBPV was collected.

Primary endpoints were PBPV success, need for second PBPV or surgery after PBPV, and mortality. Success was defined as a final pulmonary valve-pressure gradient (PVPg) <35mmHg or a decrease  $\geq 50\%$  of pre-PBPV gradient. Paired t-test was used for statistical analysis.

## Results

**Table 1. Pre-PBPV patient characteristics (n=61)**

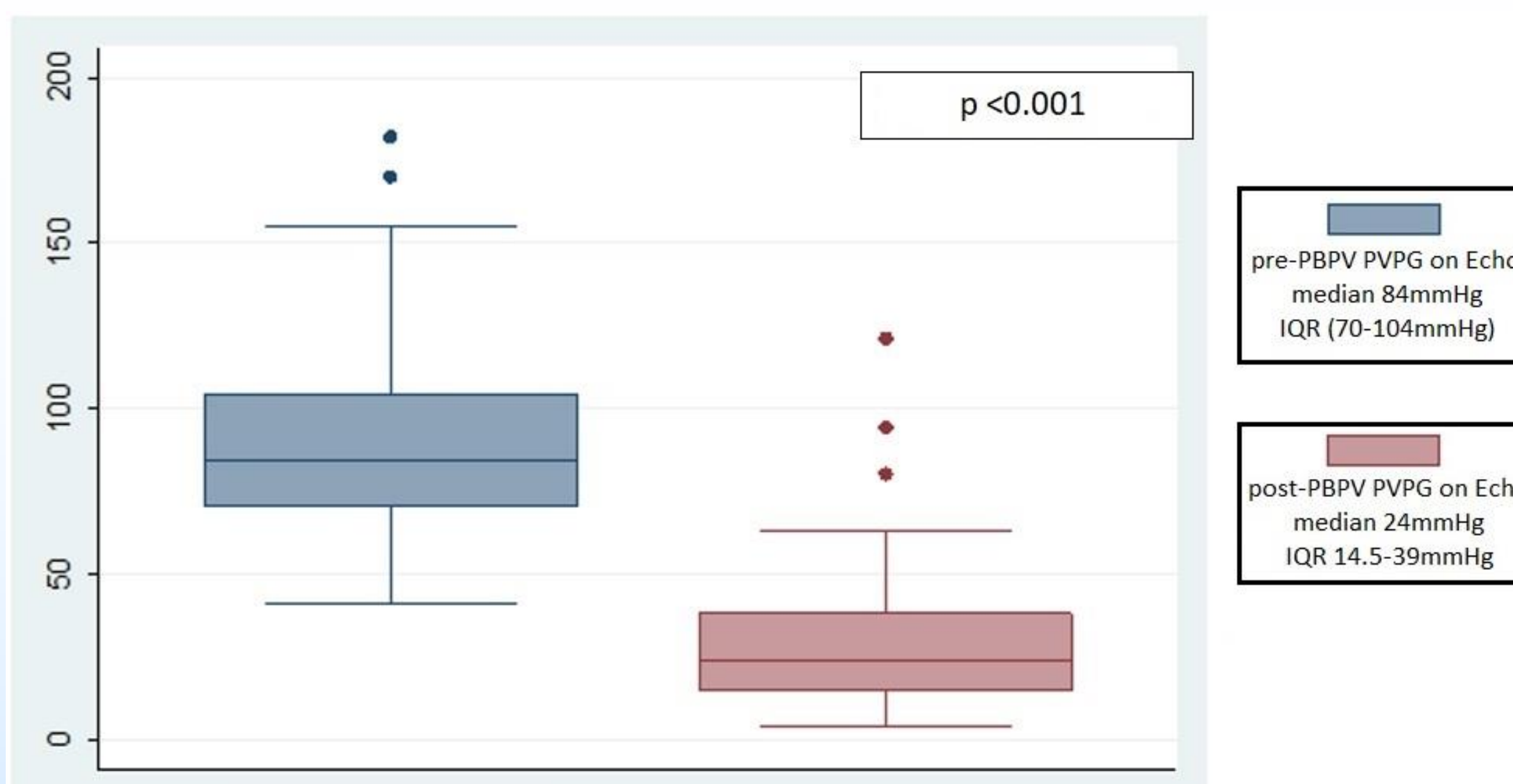
Sex	31 females (51%), 30 males (49%)
Age	2.5 years (IQR 6.5 months-7.5 years)
Weight	12 Kg (IQR 7-20.5 Kg)
WHO functional class	Class 1 82% (n=50), Class 2 12% (n=7), N/A 6% (n=4)
Pre-PBPV pulse oximetry saturation	>93% (n=45), 80-93% (n=12), <80% (n=4)
Pulmonary valve characteristics on pre-PBPV Echo	Thickened tricuspid 47% (n=29), thickened bicuspid 16% (n=10), other 37% (n=22)

**Table 2. Catheterization data (n=61)**

<b>PBPV success</b>	<b>87% (n=53)</b>
Median PVPg	pre-PBPV 72mmHg (IQR 51-78mmHg) post-PBPV 24mmHg (IQR 13-34mmHg) (p<0.001)
Median RV-to-systemic pressure ratio	pre-PBPV 1:1 (IQR 0.5-1-35:1) post-PBPV 0.6:1 (IQR 0.44-0.82:1) (p<0.001)
Balloon-to-pulmonary valve ratio	1.2 - 1.5:1
Number of balloon dilations on PBPV	1 dilation 20% (n=12), 2 dilations 48% (n=29), 3 dilations 18% (n=11), >3 dilations 14%(n=9)

**Two patients required a second PBPV and none required surgery. Mortality was 6.5% (n=4)**, all of whom had severe PVS and age <3 months. Fifty-seven (93%) patients survived to discharge. On post-PBPV echocardiogram the PVPg decreased to a median 24mmHg (IQR 14.5-39mmHg) (p<0.001) **FIGURE 1**; and only 13 patients had more than mild pulmonary valve regurgitation.

**Figure 1. Comparison of pre and post-PBPV PVPg on Echocardiography**



## Conclusions

- PBPV is performed at UNICAR with a high success rate and low mortality.
- PBPV should continue to be the preferred treatment for moderate to severe PVS in Guatemala.
- Young infants and neonates with severe PVPg should be managed with caution, as they have a greater risk of mortality.

## References

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