ICC 2026

Abstract

Balloon Pulmonary Angioplasty for CTEPH: Clinical Outcomes from a Brazilian Reference Centre

- WAINSTEIN Rodrigo Vugman, Cardiology Service, Hospital de Clínicas de Porto Alegre (HCPA), Porto Alegre-Brazil
- VALLE Felipe Homem, Cardiology Service, HCPA, Porto Alegre-Brazil
- LORENZI William, Thoracic Surgery Service, HCPA, Porto Alegre-Brazil
- GUIMARÃES Amanda Reis, Pulmonology Service, HCPA, Porto Alegre-Brazil
- BENEDETTO Igor Gorski, Pulmonology Service, HCPA, Porto Alegre-Brazil
- GAZZANA Marcelo Basso, Pulmonology Service, HCPA, Porto Alegre-Brazil

Introduction

- Chronic thromboembolic pulmonary hypertension (CTEPH) occurs in up to 5% of cases after acute pulmonary embolism.
- Although pulmonary thromboendarterectomy is the treatment of choice, a multimodal management approach including balloon pulmonary angioplasty (BPA) and medications has been gaining ground in non-surgical patients, high-risk surgical candidates, and those with persistent pulmonary hypertension after surgery[1].
- BPA may potentially improve functional capacity, reduce pulmonary pressures and pulmonary vascular resistance, and enhance right ventricular performance[2].
- The present study aims to describe the initial experience of the Hospital de Clínicas de Porto Alegre (HCPA) with the use of BPA in patients with CTEPH.

1. Inami, Circulation. 2024;
2. Kennedy, Cardiovasc Intervent Radiol. 2023.

Methods

- Design: prospective cohort.
- Inclusion criterium: all consecutive patients who underwent BPA for CTEPH at HCPA between January 2023 and March 2026.
- All patients had the diagnosis of CTEPH confirmed by V/Q scintigraphy, pulmonary angioscan and right heart catheterization.
- In candidates for BPA, bilateral pulmonary angiographies were also performed.
- Continuous variables were compared using Student's *t*-test or the Mann–Whitney test according to the distribution of normality.

Results

- 26 patients were included (male sex 27%, mean age 57 y-o) for a total of 100 BPA sessions.
- The mean number of sessions and treated lesions per patient were 3.8 (±1.6) and 13.5 (±5.9), respectively.

- Main findings are as follows
  - significant reduction in serum BNP levels: 416 pg/mL pre-procedure vs. 130 pg/mL post-procedure ($p < 0.001$);
  - reduction in mean pulmonary artery pressure: 51.3 mmHg pre vs. 39.5 mmHg post ($p < 0.001$);
  - increase in distance walked in the 6-minute walk test from 303 meters pre to 396 meters post ($p = 0.012$);
  - increase in cardiac output from 3.9 L/min pre to 5.5 L/min post ($p = 0.01$);

Results

- (cont.)
  - reduction in total pulmonary vascular resistance from 13.7 Wood units pre to 7.5 Wood units post ($p < 0.001$);
  - increase in mixed venous oxygen saturation from 59.5% pre to 68.5% post ($p < 0.001$);
  - increase in pulmonary arterial compliance from 1.29 mL/mmHg pre to 2.5 mL/mmHg post ($p = 0.003$).

- Minor complications:
  - 7 cases of self-limited episodes of hemoptysis
  - 5 cases of reperfusion injury requiring incremental oxygen therapy
- There were no serious complications, ICU admissions or deaths.

Discussion

- The Hospital de Clínicas de Porto Alegre is a large-scale tertiary university hospital in the city of Porto Alegre, southern Brazil, and is a national reference for the Brazilian Unified Health System (SUS).
- Few centres in the country are regularly offering BPA, even though the population is +220 millions.
- Our centre currently has the largest volume of BPA procedures in bRazil.
- The results we present here are broadly comparable to those of other larger international registries in terms of PVR reduction and increase in functional capacity[1,2].

1. Inami, Circulation. 2024;
2. Boucly, Eur Respir J, 2019

Conclusion

- BPA emerges as a promising effective and safe therapeutic alternative for the treatment of patients with CTEPH, with encouraging results in the studied sample.

- Long-term follow-up and expansion of the sample size will allow us to make more robust conclusions in this context.