# [Acute Vasoreactivity Testing during Cardiac Catheterization of Neonates with Bronchopulmonary Dysplasia-Associated Pulmonary Hypertension.](https://www.ncbi.nlm.nih.gov/pubmed/30871795)

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J Pediatr. 2019 May;208:127-133. doi: 10.1016/j.jpeds.2018.12.004. Epub 2019 Mar 11.

PMID: 30871795

**Take Home Points:**

* Positive response to AVT but not baseline hemodynamics is associated with better long-term clinical outcomes in premature infants with BPD-associated PH.
* Cardiac catheterization plays an important diagnostic and therapeutic role in the management of this patient population.



**Commentary from Dr. Konstantin Averin (Edmonton), catheterization section editor of Pediatric Cardiology Journal Watch:** Bronchopulmonary dysplasia (BPD) associated pulmonary hypertension (PH) contributes to significant long-term mortality and morbidity in premature infants. The optimal strategies to diagnose and treat this patient population are poorly defined. The authors sought to evaluate the role of acute vasoreactivity testing (AVT) in the assessment of premature infants with BPD-associated PH.

From 2009-2017 twenty-six premature infants (mean birth weight 580g, gestational age 26 weeks) with PH underwent cardiac catheterization and made up the study cohort; those with complex congenital heart disease were excluded. At the time of catheterization the mean age was 156 days and weight 4.1kg. Patients first underwent a baseline assessment on room air (or as close as possible) and then on 100% FiO2 and 20-40ppm iNO. Baseline hemodynamics reflected the presence of PH; 7 patients had pulmonary vein stenosis identified (not suspected pre-cath imaging in 4); and 6 patients had interventions performed (pulmonary vein dilation [4]; ASD closure [1]; PDA closure [1]). There was no relationship between baseline pulmonary hemodynamics and clinical outcomes.

Nine patients had a positive response to AVT (based on the Barst criteria) with responders having a higher birth weight (690 v 540 g), gestational age (28 vs. 26 weeks) and baseline PVRi (6.7 vs. 4 iWu). Only one of the responders (11%) had the combined outcome of death or tracheostomy vs. 6 of non-responders (35%). Kaplan-Meier event-free survival comparison is shown below. There were 4 procedural complications: 3 minor (vascular thrombosis [2]; atrial flutter requiring cardioversion [1]) and 1 major (ventricular tachycardia requiring cardioversion).

The authors conclude that while baseline hemodynamics did not predict long-term clinical outcomes, positive response to AVT was associated with a lower long-term risk of tracheostomy or death. While the risk of cardiac catheterization in patients PH is known to be significant the authors report only 1 major adverse event with no mortality and report that many patients had a change in the clinical management based on the catheterization. The findings presented in this manuscript raise important questions about the diagnosis and management of patients with BPD-associated PH. Should more patients with BPD-associated PH undergo invasive evaluation with AVT? Should non-responders be treated more aggressively given their higher long-term risk? As the survival of premature infants continues to improve it will be increasingly important to answer these (and other) questions.

