

## ABNORMALLY INCREASED PULMONARY ARTERY PULSE PRESSURE IN CTEPH ? A CRITICAL EVALUATION.

D. Chemla<sup>1</sup>, N. Creuzé<sup>1</sup>, D. Montani<sup>2</sup>, S. Günther<sup>2</sup>, L. Savale<sup>2</sup>, X. Jaïs<sup>2</sup>, O. Sitbon, G<sup>2</sup>.  
Simonneau<sup>2</sup>, M. Humbert<sup>2</sup>, P. Herve<sup>3</sup>.

1. Faculté de Médecine Paris Sud-EA4533-Service de Physiologie, CHU de Bicêtre, Le Kremlin Bicêtre. 2. Faculté de Médecine Paris Sud- Service de Pneumologie, Centre National de Référence de l'Hypertension Pulmonaire Sévère, INSERM UMR\_S999-CHU de Bicêtre, Le Kremlin Bicêtre. 3. Explorations fonctionnelles, Centre Chirurgical Marie Lannelongue, Le Plessis-Robinson, France

**Background and aim.** The pulsatile component of right ventricular afterload is quantified by the pulmonary artery pulse pressure PP, i.e., the difference between systolic and diastolic pulmonary artery pressure. Using fluid-filled pressure catheters, most studies have documented higher PP in chronic thromboembolic pulmonary hypertension (CTEPH) as compared with idiopathic pulmonary hypertension (iPAH). This hypothesis was tested using both a meta-analysis of PP recordings with high-fidelity pressure catheters and a prospective fluid-filled pressure catheter study.

**Methods.** PubMed searches were performed by entering various combinations of appropriate words. Standard catheterization was performed in 104 consecutive treatment-naïve precapillary PH patients, including 56 CTEPH and 27 iPAH ( $62 \pm 14$  vs  $51 \pm 17$  years,  $P < 0.05$ ).

**Results.** Two articles from two independent research teams met our criteria. Pooled data indicated that CTEPH ( $n=16$ ) and iPAH ( $n=17$ ) had similar mPAP ( $59 \pm 9$  vs  $59 \pm 16$  mmHg) and similar PP ( $54 \pm 19$  vs  $50 \pm 17$  mmHg). Same results were obtained when the two studies were analyzed separately. Our prospective study indicated that CTEPH had higher PP than iPAH ( $53 \pm 14$  vs  $45 \pm 13$  mmHg,  $P < 0.05$ ) despite similar mPAP ( $44 \pm 9$  vs  $49 \pm 15$  mmHg). Same results were documented when the two groups were matched for age, and when only patients with severe PH were analyzed.

**Conclusions.** Unlike standard invasive studies including the present one, two high-fidelity pressure studies have independently documented similar PP in CTEPH and iPAH ( $< 10\%$  mean difference,  $P = \text{NS}$ ). One hypothesis could be that the markedly increased pressure wave reflection phenomena previously documented in CTEPH are responsible for insufficient reliability of the PP derived from standard catheters in this setting. Further large-scale studies with high-fidelity pressure catheters are needed to solve this issue in CTEPH.