

## HIGH PREVALENCE AND MECHANISMS OF NOCTURNAL BREATHING DISORDERS IN PATIENTS WITH CTEPH. COMPARISON WITH IDIOPATHIC PH.

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**Objective:** The prevalence of sleep breathing disorders is poorly documented in patients with chronic thromboembolic pulmonary hypertension (CTEPH). Therefore we wished to evaluate its presence and compare it with patients with idiopathic pulmonary hypertension (PPH).

**Methods:** Two hundreds eighteen patients with PH, in stable clinical, functional and hemodynamic conditions, have been studied over 1 year between 2010 and 2011. Eighty-one patients were eligible (age < 75yrs, BMI<35 kg/m<sup>2</sup>, FEV<sub>1</sub>>60%), of whom 46 were recorded with one night polysomnography and PtcCO<sub>2</sub> monitoring.

**Results:** seventeen patients had CTPEH and 29 PPH, (25/46 F), mean age was 53 ± 14 yrs, BMI 24.6 ± 4.2 kg/m<sup>2</sup>. Sixty seven percent had New York Heart Association (NYHA) Functional class II, the remaining 26% and 7% had NYHA class III and I respectively. Awake PaO<sub>2</sub> was 73.7± 11.1 mmHg, PaCO<sub>2</sub> 32.6 ± 4.0. Mean pulmonary vascular resistance was 6.5 ± 2.4 Woods Units and cardiac index 3.2 ± 0 .6 l/min/m<sup>2</sup>.

Patients reported few sleep complaining symptoms except for snoring in 85% of them. They were not sleepy at daytime and the Epworth sleepiness scale was within normal range (6.1 ± 4.7).

Polysomnography revealed a moderately impaired sleep quality and decreased sleep efficiency (80.6 ± 12.9%) and decreased NREM stage 3 (75.6 ± 39.7 min).

Nocturnal hypoxemia (defined as a sleeping time spent with a SpO<sub>2</sub>< 90% above 60min and/or a desaturation index > 20/hr) was observed in 82.6% of patients.

The prevalence of desaturators was not statistically different between CTEPH (76%) and IPH (86%) patients (figure). The predictive factors (logistic regression) of nocturnal hypoxemia were: lower diurnal P<sub>a</sub>O<sub>2</sub> (83.2 ± 6.7 vs. 71.6 ± 10.8 mmHg, p=0.006) and obstructed distal airways (FEV<sub>25%-75%</sub> 95.2 ± 23.6 l/sec vs. 68.3 ± 21.5, p=0.003).

The most frequent mechanism of this nocturnal hypoxemia was VA/Q mismatch alone or associated with apneic events (mostly obstructive) in 76% of desaturators.

**Conclusion:** Sleep breathing disorders and nocturnal hypoxemia are as frequent in CTEPH as in PPH. Screening of patients should be implemented. Treatment of nocturnal hypoxemia should be evaluated in the management of patients with PH.

