Abstract Group: 4.2. Sleep and Control of Breathing

Keyword 1: Apnoea / Hypopnea  Keyword 2: Pulmonary hypertension  Keyword 3: Hypoxia

Title: Association among sleep apnea and pulmonary hypertension in highlanders

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Body: Background The factors predisposing to high altitude pulmonary hypertension (HAPH), a form of PH occurring in high altitude residents, have not been well defined. We evaluated the association of sleep apnea and HAPH in highlanders. Methods In residents of the Aksay area, Kyrgyzstan, at 3250 m, we performed clinical examinations, echocardiography, polysomnography and arterial blood gas analyses. Data from highlanders with HAPH (mean pulmonary artery pressure by echocardiography mPAP >30 mmHg, in the absence of excessive erythrocytosis, heart or lung disease) were compared to those of healthy highlanders. Results Of 90 participants, 36 had HAPH (mPAP range 31-42 mmHg), 54 were healthy controls (mPAP range 13-28 mmHg, P<0.01 vs. HAPH). Highlanders with HAPH were older (53±10y), had a lower nocturnal oxygen saturation (87±4%), a higher number of cyclic oxygen desaturations (ODI >3%) due to sleep apnea (40±26 events/h), and a higher body mass index (28.7±4.7 kg/m2) compared to highlanders without HAPH (age 39±10y, nocturnal oxygen saturation 90±3%, ODI 19±14/h, body mass index 24.0±3.9 kg/m2, P<0.001 all instances). Daytime arterial PCO2 was similar in highlanders with HAPH (4.43±0.52 kPa) and without HAPH (4.31±0.49 kPa, P=.245). In 48 participants, 24 with HAPH and 24 controls matched for age, gender and body mass index, conditional logistic regression indicated that the ODI was an independent predictor of HAPH (odds ratio 1.16, 95% CI 1.004 to 1.346, P=.044). Conclusions HAPH is associated with sleep apnea, older age and higher weight. Combined intermittent and chronic hypoxia due to sleep apnea and residence at high altitude may predispose to pulmonary hypertension. Grants: OPO Foundation and Zurich Lung League.