Pulmonary hypertension and atrial arrhythmias: incidence, risk factors, and clinical impact

L.B. Godinez Cordova¹, D.J. Sanchez-Amaya¹, R. Zebadua-Torres², M.A. Lopez-Lizarraga¹, A. Cabrera-Jara¹, T.A. Patino-Gomez¹, J.C. Lopez-Reyes², N.G. Zayas-Hernandez²

¹Instituto Nacional de Cardiologia Ignacio Chavez, Ciudad de Mexico, Mexico
²Instituto Nacional de Cardiologia Ignacio Chavez, Cardiopulmonary Department, Ciudad de Mexico, Mexico

Funding Acknowledgements: None.

Background: Atrial arrhythmias (AA) occurrence in pulmonary hypertension (PH) may determine clinical deterioration but also a herald of disease progression limiting survival and quality of life. The incidence of AA in patients with PH has not been well established in the Mexican population and scant data exist concerning the correlation of AA with clinical parameters, hemodynamic, and echocardiography variables.

Purpose: To describe risk factors, comorbidities, haemodynamic and echocardiographic variables in patients with AA in the whole spectrum of PH disease.

Methods: In this prospective cohort study from January 2021 to August 2022 we collected clinical, haemodynamic, and echocardiographic variables from 160 patients admitted to Cardiopulmonary Department. Results: Among the 160 patients, 106 (66.3%) were women, with a mean age of 46.6 years old and 78 (48.8%) belonged to World Health Organization (WHO) Group 1 of PH. AA were documented in a total of 38 patients (32.8%), being the most frequent Atrial fibrillation in 20 patients (12.5%) followed by atrial flutter in 14 patients (8.8%). Patients with AA were older and with a longer term of PH diagnosis ($p < 0.001$) and a greater proportion had coronary artery disease prevalence ($p < 0.001$). AA were more common in patients with WHO functional class (FC) IV, 11/38 vs 11/122 ($p = 0.005$) and they achieved lower distance in the 6-minute walk test 144 vs 264 ($p = 0.001$). In the haemodynamic parameters we found higher right atrial pressure ($p = 0.029$) and pulmonary wedge pressure ($p = 0.016$) in patients with AA. Serum NT-proBNP was higher among AA patients ($p = 0.030$). Echocardiographic data analysis revealed that patients with AA had increased right atrial volume ($p = 0.002$) and lower tricuspid annular plane systolic excursion (TAPSE) ($p = 0.016$).

Conclusions: Age and WHO FC IV were risk factors for the development of AA, patients with coronary artery disease had more prevalence of AA. Right atrial volume was a predictor for AA while TAPSE had a negative association with AA. In our study we did not find haemodynamic variables that predicted AA.