The Correlation Between Mean Pulmonary Arterial Pressure and NT-ProBNP in Adult Patient with Uncorrected Atrial Septal Defect

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Abstract

Background: Pulmonary Artery Hypertension (PAH) is a group 1 of pulmonary hypertension classification. PAH can occur as a result of atrial septal defect (ASD) progression which there is chronic overvolume in the right side of the heart and pulmonary artery. PAH is debilitating vascular disease of the pulmonary circulation that leads to elevation in the pulmonary artery pressure and pulmonary vascular resistance with resultant right ventricular failure and death. PAH still have unacceptably high morbidity and mortalitydespite of various therapeutic choices. Disease severity assessment of PAH determined by symptom, exercise capacity, plasma biomarker, and haemodynamics parameter. The aim of this study is to knowing correlation of NT-proBNP with mean Pulmonary Arterial Pressure (mPAP)in adult patient with uncorrected ASD.

Method: we studied 112 PAH in adult patients with uncorrected ASD who are also part of COHARD-PH (Congenital Heart Disease-Pulmonary Hypertension) studyat Sardjito General Hospital. PAH were diagnosed with right heart catheterization. Bloodtest for NT-proBNP, right atrium pressure and 6 minutes walk test (6MWT) were collected. Risk assessment of PAH is according to 2015 ESC PH guideline. We performednon-parametric correlations using spearman method using SPSS version 22.

Result: one hundred and twelve patient PAH with uncorrected ASD (102 females (91%) and 10 males (9%), mean age 36.4 ± 12.4 years) underwent right heart catheterization. Patients who were in the low risk for PAH were 26.7%, and in the moderate risk and high risk were 40.1% and 33%. NT-proBNP was correlated with mPAP (r = 0.639; P <0.001). Correlation with mPAP was also showed by 6MWT (r = -0.422; P <0.001) and right atrial pressure (r = 0.519; P <0.001).

Conclusion: In our study, most patients were in intermediate risk for PAH, followed by high risk and low risk. NT-proBNP, 6MWT, and right atrial pressure were correlated with mPAP in adult patient with uncorrected ASD. However, NT-proBNPis the most correlate with mPAP, followed by right atrial pressure and 6MWT.

Keywords: pulmonary artery hypertension; atrial septal defect; NT-proBNP