Abstract: P4680

Prognostic value of stroke volume index in patients with pulmonary arterial hypertension at intermediate risk

Authors:
F Dardi¹, E Gotti¹, M Palazzini¹, A Rinaldi¹, E Zuffa¹, F Pasca¹, A De Lorenzi¹, D Guarino¹, I Magnani¹, M Rotunno¹, A Manes¹, N Galie¹, ¹University of Bologna, Department of Specialized, Diagnostic and Experimental Medicine – DIES - Bologna/IT - Bologna - Italy,

Topic(s):
Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Epidemiology, Prognosis, Outcome

Citation:

Funding Acknowledgements:
None

Background: current pulmonary hypertension (PH) guidelines stratify the risk of patients with pulmonary arterial hypertension (PAH) using a multiparametric approach. Low, intermediate and high-risk are defined by estimated 1-year mortality of <5%, 5-10% and >10%, respectively. This risk assessment has been recently validated in 3 cohorts of PAH patients and a simplified risk table for patients with idiopathic/heritable (I/H) PAH and PAH associated with connective tissue disease (CTD) and congenital heart disease (CHD) has been recently proposed and validated. However, with this method most of the patients are classified in the intermediate risk category and additional strategies are required to further stratify this group of PAH patients.

Purpose: to evaluate the prognostic value of SVI measured with right heart catheterization (RHC) in patients at intermediate-risk.

Methods: All treatment naïve patients with I/H-PAH, CTD-PAH and CHD-PAH referred to a single centre were included from 2003 to 2017. All patients were assessed at baseline and at the 1st follow-up at 3-4 months after starting PAH-specific therapy (1st F-UP) with RHC, brain natriuretic peptide (BNP) plasma levels, 6-min walking distance (6MWD) and WHO functional class. We applied a simplified risk assessment strategy using the following criteria: WHO functional class, 6MWD, right atrial pressure or BNP plasma levels and cardiac index (CI) or mixed venous oxygen saturation (SvO2). The last 2 criteria were based on which parameter was available; if both were available the worst was chosen. Risk strata were defined as: Low risk= at least 3 low risk and no high-risk criteria; High risk= at least 2 high risk criteria including CI or SvO2; Intermediate risk= definitions of low or high risk not fulfilled. The prognostic value of SVI was assessed using Cox regression analysis. Intermediate risk patients were further stratified in intermediate-low and intermediate-high risk taking into account the value of SVI that best discriminate prognosis (according to ROC curve analysis). Kaplan Meier curves and Log-rank test were used for survival analysis.

Results: Seven hundreds and twenty-five patients were enrolled. SVI is able to stratify the prognosis of PAH patients at 1st F-UP [HR 0.979 (0.964-0.994), p-value= 0.008] but not at baseline [HR 0.986 (0.970-1.002), p-value= 0.085]. The best predictive cut-off value is 38 ml/m² (AUC= 0.66, sensitivity= 73%, specificity= 59%). Survival curves are shown in the Figure.

Conclusions: SVI assessed at 1st F-UP is predictive of prognosis and the cut off value of 38 ml/m² is able to further stratify the survival of intermediate risk PAH patients.
Abstract: P4680

Prognostic value of stroke volume index in patients with pulmonary arterial hypertension at intermediate risk

Authors: F Dardi 1, E Gotti 1, M Palazzini 1, A Rinaldi 1, E Zuffa 1, F Pasca 1, A De Lorenzis 1, D Guarino 1, I Magnani 1, M Rotunno 1, A Manes 1, N Galie’ 1

1 University of Bologna, Department of Specialized, Diagnostic and Experimental Medicine – DIMES – Bologna/IT – Bologna – Italy, Topic(s): Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Epidemiology, Prognosis, Outcome

Citation: 

Funding Acknowledgements: None

Background: current pulmonary hypertension (PH) guidelines stratify the risk of patients with pulmonary arterial hypertension (PAH) using a multiparametric approach. Low, intermediate and high-risk are defined by estimated 1-year mortality of <5%, 5–10% and >10%, respectively. This risk assessment has been recently validated in 3 cohorts of PAH patients and a simplified risk table for patients with idiopathic/heritable (I/H) PAH and PAH associated with connective tissue disease (CTD) and congenital heart disease (CHD) has been recently proposed and validated. However, with this method most of the patients are classified in the intermediate risk category and additional strategies are required to further stratify this group of PAH patients.

Purpose: to evaluate the prognostic value of SVI measured with right heart catheterization (RHC) in patients at intermediate-risk.

Methods: All treatment naïve patients with I/H-PAH, CTD-PAH and CHD-PAH referred to a single centre were included from 2003 to 2017. All patients were assessed at baseline and at the 1st follow-up at 3–4 months after starting PAH-specific therapy (1st F-UP) with RHC, brain natriuretic peptide (BNP) plasma levels, 6-min walking distance (6MWD) and WHO functional class. We applied a simplified risk assessment strategy using the following criteria: WHO functional class, 6MWD, right atrial pressure or BNP plasma levels and cardiac index (CI) or mixed venous oxygen saturation (SvO2). The last 2 criteria were based on which parameter was available; if both were available the worst was chosen. Risk strata were defined as: Low risk= at least 3 low risk and no high-risk criteria; High risk= at least 2 high risk criteria including CI or SvO2; Intermediate risk= definitions of low or high risk not fulfilled. The prognostic value of SVI was assessed using Cox regression analysis. Intermediate risk patients were further stratified in intermediate-low and intermediate-high risk taking into account the value of SVI that best discriminate prognosis (according to ROC curve analysis). Kaplan Meier curves and Log-rank test were used for survival analysis.

Results: Seven hundreds and twenty-five patients were enrolled. SVI is able to stratify the prognosis of PAH patients at 1st F-UP [HR 0.979 (0.964–0.994), p-value= 0.008] but not at baseline [HR 0.986 (0.970–1.002), p-value= 0.085]. The best predictive cut-off value is 38 ml/m2 (AUC= 0.66, sensitivity= 73%, specificity= 59%). Survival curves are shown in the Figure.

Conclusions: SVI assessed at 1st F-UP is predictive of prognosis and the cut off value of 38 ml/m2 is able to further stratify the survival of intermediate risk PAH patients.