

Left ventricle outflow tract obstruction in pulmonary hypertension

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Background. Syncope in patients with pulmonary hypertension may often be a result of acute left ventricle outflow tract (LVOT) obstruction due to rapid right heart overload and dilatation. But in routine protocol LVOT obstruction is not often evaluated in patients with PH.

Materials and methods. We included 30 subjects with pulmonary hypertension (PH): 13,3% (n=4) with idiopathic PH, 3,3% (n=1) with PH associated with portal hypertension, 70% (n=21) with PH associated with congenital heart disease and 13,3% (n=4) with chronic thromboembolic PH. We used physical examination and echocardiography according to protocol provided in ESC 2015. We also evaluated LVOT diameter, LVOT gradient and aortic gradient. In order to find association, we used Spearman correlation analysis.

Results. Mean pulmonary artery systolic pressure (PASP) was 89.21 ± 4.46 mmHg, most patients belonged to the II functional class and were stable at the moment of inclusion. About 6,7% experienced syncope previously. We calculated the difference between mean aortic gradient and LVOT gradient. We have not found any significant correlation of this difference with any other factors studied besides the negative trend of correlation with syncope in history which still was not significant ($r=-0.451$; $p=0,058$). Not significance of this correlation may be caused by the low number of subjects included. Then, we marked LVOT gradient over 7 mmHg as 1 and correlated this value with other parameters. We have found strong significant correlation of this value with syncope in anamnesis ($r=0.689$; $p=0.001$). LVOT diameter was not significantly correlated with any events in anamnesis.

Conclusions. We may conclude that LVOT obstruction estimation may be very helpful for diagnostics in patients with PH and right heart dilatation in order to evaluate the risk of complications especially the risk of syncope. That is particularly true for LVOT gradient over 7 mmHg and less for lowering the difference from aortic to LVOT gradient.