Pulmonary Valve Stenosis (PS)

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BACKGROUND:

Pulmonary valve stenosis (PS) could be treated efficiently by balloon valvuloplasty. Severe PS with high gradient(PG) or moderate symptomatic PS are considered for valvuloplasty. The success of valvuloplasty is estimated by reduction of PG. Right ventricular (RV) affection with PS could occur even with non-severe PG. Markers of myocardial damage due to increased afterload such as troponin are hypothesized to increase with severe RV strain.

OBJECTIVE:

We aim to find an objective laboratory test that determine the success of valvuloplasty and the relief of RV afterload. Therefore, it could be used as an determinant of valvuloplasty success and of the need of re-dilatation in case of restenosis.

METHODS AND PATIENTS:

We recruited all patients with valvular PS who are amenable for balloon valvuloplasty according to the guidelines. Echocardiographic evaluation of PS severity and pulmonary valve annulus diameter were done. All patients Were subjected to high sensitive troponin T analysis just before valvuloplasty. Balloon valvuloplasty were done with the suitable balloon size using single balloon technique. Echocardiographic re-assessment of PG as well as hs troponin T were done 2 weeks and then 6 months post valvuloplasty.

RESULTS:

Fortyfive patients were recruited. Their mean age was 21.3 ± 14.6 year. Mean PG across pulmonary valve before dilatation was 73 ± 17 mmHg. They were all successfully dilated with significant drop of PG. Mean PG post-dilatation was 22 ± 14 mmHg. Troponin T level was initially positive in 32 cases (71.1%). In the group who had initially positive troponin, there was a significant correlation between PG and troponin level. Two weeks post-dilatation, troponin T was negative in all cases. Six months later, 8 cases had re-elevation of troponin with increased PG in those cases by 17 ± 9 mmHg.

CONCLUSION:

Pulmnary valve stenosis causes pressure overload on RV resulting in some sort of myocardial cell damage. This process results in troponin release. Assessment of troponin can help in classifying the degree of stenosis . It could be a marker to detect the failure of valvuloplasty. Troponin re- elevation occurs in pulmonary re-stenosis. This objective laboratory marker can be used to assess the need for re-dilatation of the valve.
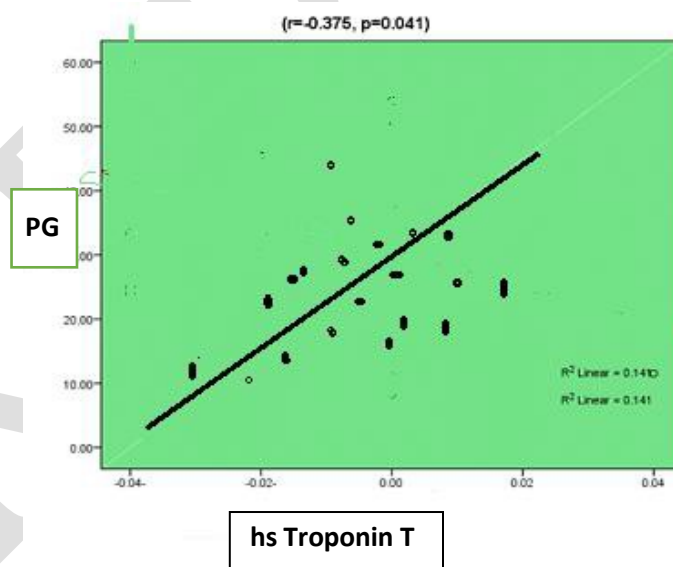
Correlation between pressure gradient across pulmonary valve and hs troponin in the group with initially positive troponin.