

Pulmonary hypertension and right ventricular function in the sickle cell populace

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Abstract

Sickle cell anaemia(SCA) is a recognized cause of heart failure and pulmonary hypertension(PHT). However, the impact of PHT on right ventricular(RV) function has not been well elucidated. Objective To determine the impact of PHT on right ventricular function in patients with SCA. Methods Cases were adults with SCA with PHT. Controls were SCA patients without pulmonary hypertension. All patients were recruited in steady-state. Echocardiography was done for cases and controls. Measures of RV function used were RV fractional area change (RV FAC), peak tricuspid annular systolic velocity (S') and Tricuspid annular plane systolic excursion (TAPSE). Pulmonary hypertension was estimated from Tricuspid regurgitation jet velocities. Right atrial pressure was estimated using the ratio of the Trans tricuspid early diastolic velocity to the early tissue doppler diastolic velocity of the tricuspid annulus. Values >35mmHg were said to have PHT. Results Out of 86 patients, there were 36 people with SCA that had tricuspid regurgitation- 11 with PHT, 25 without PHT. The mean values of RV systolic function- RV FAC (0.41SD0.1 vs 0.41SD0.1; p= 0.999), S' (16.5SD5.1 vs 15.9SD4.3; p= 0.116) and TAPSE (30.7SD5 vs 29.7SD4.3; p=0.389) were not significantly different between cases and controls respectively. Trans tricuspid E/A ratio (1.49SD0.4 vs 1.61SD0.4; p=0.381) was essentially the same between both groups while the early trans tricuspid deceleration time showed a trend towards being shorter in those with PHT (194.1SD35.1vs 223.3SD53.6; p=0.084). Conclusion: The prevalence of PHT was 12.8% in SCA patients. There is no significant impact of PHT on RV function in SCA.

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