

RVOT Systolic Excursion – A Novel Echocardiographic Parameter of Right Ventricular Function

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Background: Right ventricular (RV) function has important prognostic and therapeutic implications. Assessment of RV function using echocardiography is challenging. The aim of this study was to evaluate a new parameter of RV function, right ventricular outflow tract systolic excursion (RVOT_SE).

Methods: RVOT_SE was measured using the parasternal short axis view at the level of the aortic valve and M-Mode echocardiography (Figure). We measured the systolic excursion of the RVOT anterior wall. RVOT_SE was measured in 45 patients (age 63 ± 19 y, 26 males) with normal RV function (RV fractional area change (RVFAC) $> 32\%$ and tricuspid annular plane systolic excursion (TAPSE) > 1.5 cm) and 18 patients (age 70 ± 12 y, 2 males) with reduced RV function (RVFAC $< 32\%$ and TAPSE < 1.5 cm).

Results: RVFAC was $46 \pm 6\%$ in the normal RV group and $22 \pm 6\%$ in the reduced RV group ($p < 0.0001$). TAPSE was 2.2 ± 0.4 cm in the normal RV group and 1.0 ± 0.2 cm in the Reduced RV group ($p < 0.0001$). RVOT_SE was 9.5 ± 1.4 mm in the normal RV group and 1.4 ± 1.1 mm in the reduced RV group ($p < 0.0001$). An RVOT_SE < 6 mm identified patients with reduced RV function with a 100% sensitivity and 100% specificity. The figure below shows RVOT_SE measurements in a patient with normal (A) and reduced (B) RV function.

Conclusions: RVOT_SE is a novel, simple, and promising parameter for assessing RV function. Further study is needed to determine the usefulness of RVOT_SE for echocardiographic assessment of RV function.

