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Spotlight on Special Topics

PREVALENCE OF CARDIAC INVOLVEMENT IN HOSPITALIZED PATIENTS WITH COVID-19: ECHOCARDIOGRAPHIC FINDINGS IN A REGISTRY OF 768 PATIENTS

Poster Contributions

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Background: Previous studies evaluated parameters of left ventricular (LV) and right ventricular (RV) function in small cohorts of COVID-19 patients (pts). We sought to investigate prevalence of cardiac disease using TTE in one of the largest available COVID-19 registries.

Methods: Data were obtained from CURATOR registry for pts admitted with COVID-19 diagnosis. All pts with ≥ 1 TTE were included. Each study was analyzed for chamber sizes, LV systolic and diastolic function (biplane EF, global longitudinal strain (GLS), mitral inflow, mitral annulus e' velocity, E/e' ratio, pulmonary veins), TAPSE, tricuspid annular systolic velocity, and valvular dysfunction.

Results: A total of 768 pts with the first TTE after COVID-19 diagnosis were included. Major indications for TTE were shortness of breath, shock, chest pain and pulmonary embolism. We excluded 44 with known cardiac disease. Out of 724 pts (median age 62 years), 48.3% were females, 25.3% Caucasian, 28% African-American and 38% Hispanic. There were 349 (48%) admitted to ICU with 117 on mechanical ventilation. LV EF was $64 \pm 13\%$ with 6% having an EF $< 50\%$. LV GLS was measured in 123 (16.9%) at $16.1 \pm 4\%$ and 38.2% had GLS $< 16\%$. LV diastolic function was normal in 477 (65.8%), grade I dysfunction in 113 (15.6%), grade II in 73 (10%), grade III in 17 (2.3%), indeterminate in 13 (1.8%), and could not be assessed due to missing signals in 28 (3.9%). TAPSE was 2.1 ± 0.4 cm with 63 (8.7%) having TAPSE < 17 mm. Tricuspid annulus systolic velocity was 12 ± 3.3 cm/s, with 141 (19.4%) having velocity < 9.5 cm/s. Pulmonary artery systolic pressure > 35 mmHg was present in 137 (19%) with an average pressure of 38 ± 13 mmHg. Pericardial effusion was present in 74 (10.2%) studies: 68 small, 4 moderate, 2 large. Mean Troponin was 1.6 ± 11.8 ng/mL, with elevated troponin (> 0.04) in 261 (36%). Mean BNP was 256 ± 687 pg/mL, with elevated BNP (> 100) in 35.4%.

Conclusion: In hospitalized patients with COVID 19 who underwent echocardiography abnormal levels of troponin and BNP were detected in 36% and 35.4% respectively, with evidence of LV systolic dysfunction by GLS in 12.4%, and diastolic dysfunction in 28%. Abnormal RV function was detected by TAPSE in 8.7% and tricuspid systolic velocity in 19.4%.