A482 - Comparison of superior vena cava & inferior vena cava diameter changes by echocardiography in predicting fluid responsiveness in mechanically ventilated patients.

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Introduction:
To assess and compare the efficacy of Superior Vena Cava (SVC) & Inferior Vena Cava (IVC) diameter changes in response to passive leg raise by Echocardiography in predicting fluid responsiveness in mechanically ventilated hemodynamically unstable critically ill patients.

Methods:
30 patients with hypovolemia or septic shock, mechanically ventilated and critically ill were prospectively enrolled over a one-year period in our ICU. Heart rate, systolic blood pressure, diastolic blood pressure, mean arterial blood pressure, respiratory variation in SVC diameter measured by transesophageal echocardiography (TEE), IVC diameter by transthoracic echocardiography(TTE) and change in cardiac index measured by maximal doppler velocity in left ventricular outflow tract were recorded. With formulas, predictive indices like Collapsibility Index of SVC (cSVC) and Distensibility Index of IVC(dIVC) were calculated and measurements were performed at baseline and 1 minute after PLR. Patients were separated into responders(R)(increase in cardiac index ≥10%) and non-responders(NR) (increase in cardiac index <10% or no increase).

Results:
Among 30 included patients, 24 (80%) patients were responders. cSVC was significantly more accurate than dIVC in predicting fluid responsiveness. The areas under the receiver operating characteristic curves for cSVC and dIVC regarding assessment of fluid responsiveness were 1.00 (95% confidence interval(CI):1.00 to1.00) and .66 (95% CI: 0.44 to 0.89) respectively. No significant correlation between cSVC and dIVC was found among R (r=.02, P=0.92) and NR (r=0.46, P=0.35)at baseline. The best threshold values for discriminating R from NR was 35% for cSVC with sensitivity and specificity of being 100% and 25% for dIVC with 54% sensitivity and 86.7% specificity.

Conclusion:
cSVC had the better sensitivity and specificity than dIVC in predicting fluid responsiveness. cSVC had a greater diagnostic accuracy than dIVC in our study.