

MEETING ABSTRACT

Open Access

# Tricuspid annular plane systolic excursion is reflective of biventricular function in critically ill patients

Ratender Singh\*, Sudeep Kumar, Sreevatsa Nadig, Arvind Baronia

From 9th WINFOCUS World Congress on Ultrasound in Emergency and Critical Care Hong Kong. 6-9 November 2013

## Background

Tricuspid annular plane systolic excursion (TAPSE) is an easily measurable, fast and reproducible echocardiographic parameter which gives relevant information about biventricular cardiac function.

## Objective

To explore the utility of tricuspid annular plane systolic excursion (TAPSE) for biventricular function assessment in critically ill ICU patients at admission.

## Design

Prospective observational study.

## Setting

A 12-bed medical-surgical critical care unit.

## Patients and methods

Hundred and one patients admitted to the ICU for sepsis, septic shock, acute cardio respiratory failure or other organ supportive care. A trained cardiologist conducted transthoracic echocardiography within 48 hours of admission to ICU. Echocardiographic parameters of both right and left heart along with demographic, prognosis, hemodynamic, ventilator, and laboratory parameters were recorded.

## Results

TAPSE, right ventricle (RV) fractional area change (FAC), the left ventricular ejection fraction (LVEF), were measured using Doppler echocardiography. Mean age and TAPSE of patients was  $41.54 \pm 16.07$  years and  $23.09 \pm 5.534$  mm respectively. Positive correlation of TAPSE was

observed with pulsed doppler peak velocity at annulus (right) ( $N = 95$ ;  $r = 0.432$ ;  $p = 0.000$ ), RVFAC ( $N = 94$ ;  $r = 0.397$ ;  $p = 0.000$ ), pulsed doppler peak velocity at annulus (left) ( $N = 98$ ;  $r = 0.287$ ;  $p = 0.004$ ), LVEF ( $N = 97$ ;  $r = 0.248$ ;  $p = 0.014$ ). Also observed was a negative correlation with tissue doppler myocardial performance index (left) ( $N = 74$ ;  $r = -0.226$ ;  $p = 0.05$ ). On logistic regression analysis TAPSE showed a significant impact on both RVFAC ( $p = 0.009$ ; Exp (B) = 11.329; 95% C.I = 1.832-70.079) and LVEF ( $p = 0.040$ ; Exp (B) = 14.154; 95% C.I = 1.127-177.825).

## Conclusions

TAPSE is reflective of biventricular function at baseline in critically ill ICU patients. Its potential as a hemodynamic monitoring tool needs further exploration in critical illness.

Published: 31 January 2014

doi:10.1186/2036-7902-6-S1-A14

Cite this article as: Singh et al: Tricuspid annular plane systolic excursion is reflective of biventricular function in critically ill patients. *Critical Ultrasound Journal* 2014 **6**(Suppl 1):A14.

SGPGIMS, Department of Critical Care Medicine, Lucknow, India