Introduction:
Acute cor pulmonale (ACP) is a common sequel in acute respiratory distress syndrome (ARDS) patients and represents the most severe presentation of right ventricular dysfunction, secondary to pulmonary vascular dysfunction. Although most previous studies adopt trans-oesophageal echocardiography in the diagnosis of ACP in ARDS, transthoracic echocardiography (TTE) appears as an attractive alternative being noninvasive, more available with continuously improving expertise in its use by the intensivists. Our study aimed to test the accuracy of ACP risk score by using TTE.

Methods:
Our study was carried out on 45 mechanically ventilated ARDS patients. The patients were mechanically ventilated using lung protective approach. TTE was performed within the first 72 hours of ARDS diagnosis. ACP was diagnosed when the ratio of right ventricular end-diastolic area/left ventricular end-diastolic area >0.6 in apical 4 chamber view (indicating right ventricular diastolic overload) associated with interventricular septum dyskinesia at end-systole (indicating right ventricular systolic overload). ACP risk score parameters were checked and scored (1 point for each parameter) (pneumonia as a cause of ARDS, driving pressure ≥ 18 cmH₂O, PaCO₂ ≥ 48 mmHg, PaO₂/FiO₂ ratio < 150 mmHg).

Results:
ACP risk score showed high sensitivity (100%), average specificity (51.43%) and good overall accuracy (62.2%) when 2 was used as cut off value. Hypercapnia, hypoxia, pneumonia, high plateau pressure and high positive end-expiratory pressure were associated with increased incidence of ACP in ARDS patients and considered as independent factors of mortality in ARDS patients.

Conclusion:
ACP risk score is a highly sensitive score in predicting and diagnosis of ACP in ARDS patients. The disease process, as well as the ventilatory maneuvers, may share in the development of ACP in ARDS.