N-terminal pro brain natriuretic peptide as a novel predictor of weaning from mechanical ventilation

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Abstract

BACKGROUND: Predicting successful weaning of critically ill patients from MV can be very challenging. Therefore، **the aim** of this study was to evaluate diagnostic accuracy of N-terminal pro brain natriuretic peptide (pro-BNP) to predict weaning failure. **METHODS:** Thirty ICU patients at Fayoum University Hospital were included. Variables measured at start of MV and during spontaneous breathing trial (SBT) static respiratory compliance at the start of MV, PaO2/FIO2, RSBI, ABG and N-terminal pro-BNP. **RESULTS**: According to the study outcomes, Survivor group N.=23: 76.7%, non-survivor group N.=7: 23.3%. N-terminal pro BNP increased significantly during SBT with mean±SD 15275±6667.7ng/L (SD) versus 1599.7±1448.7ng/L (SD) ng/L at start of MV. At start of MV, N-terminal pro-BNP showed no statistically significance correlations with static compliance and ABG, while highly significant positive correlation with RSBI. During SBT it showed no statistically significance correlations with RSBI and static compliance, while significant positive correlation with PO2. BNP, at start of MV cutoff point = 1765 ng/L with sensitivity 78.3% and specificity 57.1% and during SBT cutoff point = 18500 ng/L with sensitivity 87% and specificity 57.1% .BNP in non-survivor at start of MV was 2764.3 ng/L and 20178.6 ng/L during SBT while among survivor at start of MV was 1245.2 ng/L and 13782.6ng/L during SBT. **CONCLUSIONS**: Serum NT-pro-BNP appears promising to detect weaning-induced cardiovascular dysfunction as it is difficult to apply echocardiography as a routine monitor in the ICU. Further investigation is required to assess the utility of this test as a complement of the standard clinical monitoring of the weaning trial.