

harvested to evaluate O-GlcNAc impact on calcium actors. In parallel, LPS and CLP studies were completed with a Kaplan-Meier mortality or an adapted SOFA score evaluations, respectively.

**Results:** In both models, NButGT efficiently increased cardiac O-GlcNAc (+300% vs Ctrl) with no modification of its three regulatory enzymes (GFAT, OGT and OGA; vs LPS-FR or CLP). NButGT induced an amelioration of the outcome with (i) a 57.2% decrease in lactatemia (vs LPS-FR) (ii) a 3-fold increase in survival time (vs LPS-FR) and (iii) a 23% decrease in SOFA score (vs CLP). Moreover, organs function was significantly improved; among them heart (heart rate -5.5% vs LPS-FR; -10% vs CLP), kidney (creatinine -56.5% vs LPS-FR; -27% vs CLP) and it also had a beneficial impact on mean AP (MAP +10% vs CLP). These beneficial effects were associated with a restoration of SERCA2a protein level (-56% vs LPS-FR, ns vs Ctrl) without modification of its regulator (phospholamban) or ryanodine receptor.

**Conclusion:** Our results demonstrate that an acute O-GlcNAc stimulation is a potential new therapeutic target in septic shock. In our two models, we especially showed an improvement of cardiac function potentially through an improvement of cardiomyocytes' calcium handling. We are currently validating our approach at different doses and ages to be able to transfer our results to the clinic.

**Funding Acknowledgements:** This project has been supported by Baxter Healthcare Corporation.

## P5689

### Echocardiographic predictors for successful weaning from veno-arterial extracorporeal membrane oxygenation

C.A. Frederiksen<sup>1</sup>, R. Nielsen<sup>1</sup>, A.S. Frederiksen<sup>1</sup>, S. Christensen<sup>2</sup>, J. Greisen<sup>2</sup>, H. Vase<sup>1</sup>, B.B. Logstrup<sup>1</sup>, S. Mellemkjaer<sup>1</sup>, H. Wiggers<sup>1</sup>, H. Molgaard<sup>1</sup>, C.J. Terkelsen<sup>1</sup>, S.H. Poulsen<sup>1</sup>, H. Eiskjaer<sup>1</sup>. <sup>1</sup>Aarhus University Hospital, Department of Cardiology, Aarhus, Denmark; <sup>2</sup>Aarhus University Hospital, Department of Anesthesia and Intensive Care Medicine, Aarhus, Denmark

**Background:** Veno-arterial extracorporeal membrane oxygenation (VA-ECMO) treatment has become an integral part in the management of critically ill patients suffering from severe refractory cardiac failure.

However, issues often arise when cessation of the therapy is pertinent. Very few studies have assessed echocardiographic parameters during weaning from VA-ECMO.

**Purpose:** To evaluate the echocardiographic changes during weaning in patients suffering from severe refractory cardiac failure and to test predefined echocardiographic parameters as predictors of successful weaning of VA-ECMO.

**Methods:** We studied 29 consecutive patients (age 55±14 years, 7 women) during VA-ECMO treatment. When patients were clinically stable and echocardiography demonstrated left ventricular outflow tract velocity time integral (VTI) ≥7 cm, a VA-ECMO weaning attempt was performed. Echocardiography was conducted at full VA-ECMO flow, at 66% flow and at 33% flow. VTI, tricuspid annular plane systolic excursion (TAPSE), ejection fraction (EF) and peak systolic velocity of mitral annular longitudinal movement (S') were recorded. Successful weaning was defined as completing weaning and being alive 24 hours later without hemodynamic mechanical support. Unsuccessful attempts were determined on the basis of an overall hemodynamic evaluation.

**Results:** 20 weaning attempts were performed among 15 patients, and 15 attempts were successful. In the remaining 14 patients weaning was not attempted (48%) due to futility. VTI increased from 11.3±3.6 to 14.3±4.1 during successful weaning attempts and similarly from 9.4±4.4 to 13.5±6.4 during unsuccessful attempts (Figure 1). TAPSE was higher at full VA-ECMO flow in successful as compared to unsuccessful weaning (p=0.02) (Figure 1). At full VA-ECMO flow there was no difference in EF between successful (EF 30%, IQR 5%) and unsuccessful (EF 20%, IQR 20%) attempts (p=0.35). S' at full VA-ECMO flow tended to be higher during successful weaning (7.7±2.6 cm/s) compared to unsuccessful weaning (5.2±0.8 cm/s), however, the difference did not reach statistical significance (p=0.08). Overall 30-day mortality was 59%.

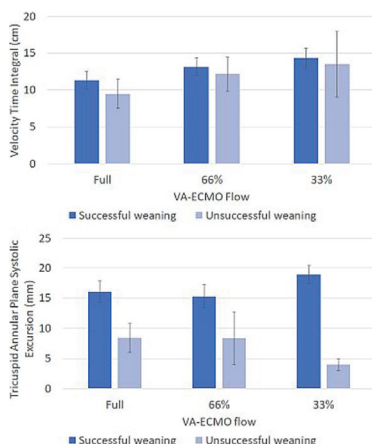


Figure 1

**Conclusion:** The findings suggest that in patients treated with VA-ECMO assessment of right ventricular function by echocardiography is important and may predict successful weaning. More data are needed to support the findings.

## P5690

### A novel mortality risk score predicting intensive care mortality in cardiogenic shock patients treated with veno-arterial extracorporeal membrane oxygenation

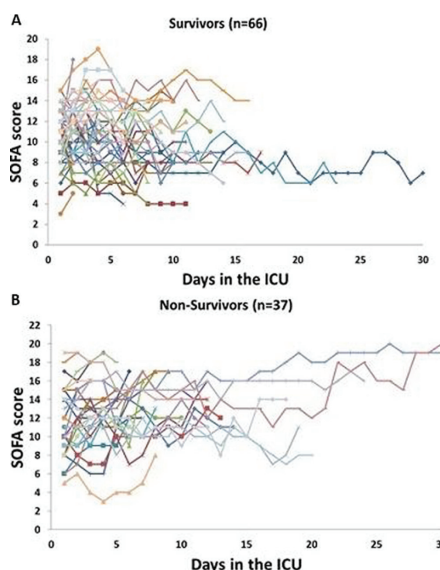
S. Akin<sup>1</sup>, K. Caliskan<sup>2</sup>, O.I. Soliman<sup>2</sup>, R. Muslem<sup>2</sup>, G. Guven<sup>1</sup>, R.J. Van Thiel<sup>3</sup>, A. Struijs<sup>3</sup>, D. Gommers<sup>3</sup>, F. Zijlstra<sup>2</sup>, J. Bakker<sup>1</sup>, D. Dos Reis Miranda<sup>1</sup>. <sup>1</sup>Erasmus Medical Center, Thoraxcenter, Department of Cardiology and Intensive Care, Rotterdam, Netherlands; <sup>2</sup>Erasmus Medical Center, Thoraxcenter, Department of Cardiology, Rotterdam, Netherlands; <sup>3</sup>Erasmus Medical Center, Intensive Care, Rotterdam, Netherlands

**Background:** Mortality after veno-arterial extracorporeal membrane oxygenation (VA-ECMO) implantation is still a major problem in patients with cardiogenic shock. There are few scores existing for the prediction of mortality, however, either based on small or selected populations.

**Purpose:** To assess the clinical utility of the SOFA score in combination with right ventricular dysfunction for prediction of ICU mortality in patients supported with VA-ECMO.

**Methods:** Data were retrospectively obtained from all adult patients (n=103) on VA-ECMO in our tertiary referral center between November 2004 and January 2016. The primary outcome of this study was ICU mortality after VA-ECMO implantation. Using the clinical, demographic and echocardiographic data, we developed a novel mortality risk score, the SOFA-RV score by adding right ventricular (RV) function to the Sequential Organ Failure Assessment score at the time of VA-ECMO implantation.

**Results:** Out of 103 patients, 37 (36%) died in the ICU. The median duration of VA-ECMO support was 7 days [IQR 4–11] with mean age 49±16 years, and 54% male. By adding RV function to the existing SOFA score, the performance of the SOFA score improved significantly. SOFA-RV has an AUC of the ROC curve of 0.70, and was significantly better than SOFA alone (AUC of 0.57). In addition, SAVE and MELD scores were not able to predict ICU mortality.



Microcirculation in LVAD tamponade

**Conclusion:** Adding RV function to the existing SOFA score improves significantly the prediction of ICU mortality in patients with VA-ECMO. Dedicated evaluation of the right ventricular function in patients with VA-ECMO is therefore highly recommended.

## P5691

### First series of Impella mechanical circulatory support for takotsubo syndrome with shock

L.C. Napp<sup>1</sup>, J.E. Moeller<sup>2</sup>, K. Ibrahim<sup>3</sup>, A. Uwarow<sup>4</sup>, J.T. Sieweke<sup>1</sup>, W. O'Neill<sup>5</sup>, A. Schaefer<sup>1</sup>, J. Bauersachs<sup>1</sup>, D. Burkhoff<sup>6</sup>, R. Westenfeld<sup>4</sup>. <sup>1</sup>Hannover Medical School, Department of Cardiology and Angiology, Hannover, Germany; <sup>2</sup>Odense University Hospital, Director, Heart Failure Research, Odense, Denmark; <sup>3</sup>University Hospital Dresden, Dept. of Cardiology, Dresden, Germany; <sup>4</sup>Medical Faculty, Heinrich-Heine-University, Division of Cardiology, Pulmonology, and Vascular Medicine, Duesseldorf, Germany; <sup>5</sup>Henry Ford Hospital, Department of Interventional Cardiology and Structural Heart, Detroit, United States of America; <sup>6</sup>Cardiovascular Research Foundation, New York, United States of America

**Background:** Takotsubo Syndrome (TS) is an acute heart failure syndrome