

Category : **Sepsis/septic shock: management**

**A46 - Norepinephrine infusion titration at the early phase of septic shock: relevance of a transcranial doppler based protocol**

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**Introduction:**

In septic shock, the surviving sepsis Campaign (SSC) guidelines give clear recommendations about the initial mean arterial pressure (MAP) goals but remain incomplete regarding further goals. The cerebral circulation is concerned by the blood flow redistribution during shock and can be assessed by transcranial doppler (TCD). The purpose of this study was to assess the contribution of TCD in hemodynamic management during the early phase of septic shock by comparing a personalized TCD-guided hemodynamic goals to the SSC recommendations.

**Methods:**

Fifty patients meeting the Sepsis-3 consensus criteria were enrolled and equally randomized into 2 groups. Concerning norepinephrine infusion, we aimed in the standard group to maintain a MAP  $\geq$  65 mmHg with negative blood lactate level during 72 hours after shock onset. For the TCD-guided group, MAP goals and Norepinephrine infusion rate were determined according to TCD measurements to achieve a pulsatility index (PI)  $<$ 1.3. Sepsis associated encephalopathy (SAE) was diagnosed using CAM-ICU score  $>$ 3 or a GCS deterioration. The main outcome was 28 days mortality.

**Results:**

The 2 groups were comparable regarding demographic and initial severity scores. We noticed an increased mortality ( $p=0.031$ ), higher incidence of SAE ( $p<10^{-3}$ ) and cerebral hypoperfusion ( $p<10^{-3}$ ) in the standard group. In TCD-group, TCD measurements were improved with lower PI ( $p<10^{-4}$ ). MAP was higher in the TCD-group ( $p<10^{-4}$ ) along the study period with no difference in norepinephrine mean infusion rate ( $p=0.497$ ). No difference in final SOFA scores, duration of mechanical ventilation, ICU length of stay and duration of Norepinephrine infusion were recorded.

**Conclusion:**

Monitoring of the cerebral perfusion using TCD is useful in personalizing hemodynamic goals during septic shock and thus improve mortality and neurological outcome.