Introduction:
The aim of this study is to evaluate changes in hemodynamics and microvascular perfusion during extracorporeal blood purification with Cytosorb in patients with septic shock requiring renal replacement therapy.

Methods:
Eight adult patients with septic shock requiring continuous renal replacement therapy for acute renal failure were enrolled and underwent a 24-hour treatment with the emodasorption cartridge Cytosorb. Measurements were taken at baseline before starting Cytosorb, after 6h (t1) and 24h (t2) and included: blood gases, macro-hemodynamic parameters (Picco2), vasopressor and inotropic dose, plasma levels of cytokines (interleukin [IL]-1, IL6, IL8, IL10, tumor necrosis factor alpha) and parameters of microvascular density and perfusion (sublingual sidestream dark field videomicroscopy). Procalcitonine was measured at baseline and after 24h of treatment.

Results:
A non-significant decrease in plasma levels of cytokines was observed over time. Hemodynamic parameters and vasopressor requirement remained stable. The microvascular flow index increased significantly at t2, total vessel density and perfused vessel density increased at t1 and t2 (Figure 1 and 2).

Conclusion:
In patients with septic shock requiring continuous renal replacement therapy for acute renal failure, blood purification with Cytosorb was associated with an improvement in sublingual microvascular perfusion.
Microvascular Flow Index

Image 2:
Perfused Vessel Density