Microcirculatory studies in developing countries – first results of the MicroScreen study

Nivin Sharawi¹
¹Cairo University

Aim: semi-quantitative imaging techniques are currently available to monitor the microcirculation. However, movement artifacts, large analysis time, and observer-related bias represent still existing limitations of the technique. Our aim was to validate the reliability of novel automated software (CytocamTool®, AVA4®) in comparison to standard semi-automated software (AVA3®) to analyze the sublingual microcirculation in developing country.

Design: Observational study.

Patients: septic shock patients.

Methods: Using CytoCam-IDF - a new generation Incident Dark Field imaging device, sublingual microcirculatory videos were recorded as previously described. Functional capillary density (FCD), perfused vessel density (PVD), proportion of perfused vessels (PPV) and microvascular flow index (MFI) were analysed and compared using the 3 software packages.

Results: Similar to previous studies, hypoperfusion and microcirculation heterogeneity were observed using a standard semi-automated software. Results of the automated software analyses confirmed the previous findings but showed in part significantly different numbers.

Conclusions: Automated software is able to reduce human interaction and analysis time and to reproduce the previous reported microcirculation alterations. However, the quality of the recorded videos, video processing and vessel segmentation, are important factors that should be considered in the interpretation of automated software reports in septic shock patients.