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## Endothelial microvesicles in patients on extracorporeal membrane oxygenation: Potential markers of systemic inflammation and organ dysfunction?

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**Introduction & Aim:** Inflammatory response influences mortality and morbidity. Processes leading to a systemic inflammation are associated with endothelial injury. Endothelial cells release microvesicles and several other biomarkers which can be used as diagnostic tools for detection and treatment of inflammatory response. There is limited information regarding endothelial dysfunction in newborns. Aim of our study was to explore microvesicles in critically ill newborns.

**Methods:** Microvesicles were measured in newborns on extracorporeal membrane oxygenation (ECMO) and compared to samples of healthy term newborns. The total microvesicle count and number of surface antigen-specific microvesicles was determined by flow cytometry (BD FACS CantoII). The plasma concentration of cell-derived microvesicles (MV) was measured using annexin V labeling of the microvesicles and the endothelial origin of microvesicles were determined using lineage specific antigen labelling of endothelial cell/microvesicle markers (CD105, CD31, CD309, MadCAM).

**Results:** 13 newborns on extracorporeal membrane oxygenation (ECMO group) and 13 healthy term newborns (Term group) were included. There were no significant differences in gestational age, birthweight and gender between groups. The concentration of markers shows Table 1.

**Conclusion:** Soluble markers of inflammation and concentration of microvesicles were significantly increased in ECMO group. We did not detect significant differences in the concentration of endothelial specific microvesicles between the groups, with the exception of mucosal endothelium marker MadCAM. The understanding of endothelial cell response during inflammation may help to find biomarkers of early detection of neonatal diseases.

### Biography

V Vítková graduated from Faculty of Medicine Charles University, Prague in 2012 and started her PhD studies in 2016 at Charles University, Department of Pathological Physiology. Currently, she works as a Pediatrician/Neonatologist in Department of Neonatology, Thomayer Hospital, Prague, Czech Republic

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