

Introductory Remarks to Symposium 17

Mechanisms of reperfusion-failure after cerebral ischemia

Nikolaus Plesnila, Munich

Ischemic stroke causes brain damage not only during the ischemic period but, counterintuitively, also after recanalization of the occluded artery. As more and more stroke patients receive recanalization therapy, prevention of reperfusion injury may have great clinical potential. Unfortunately, the underlying mechanisms are not fully understood.

Traditionally, the so-called "no reflow phenomenon" has been thought to be one of the main processes contributing to reperfusion injury. "No reflow" describes a process in which cerebral microcirculation is obstructed during ischemia and recanalization is unable to restore microvascular flow. A plethora of processes have been discussed as responsible for no reflow after ischemic stroke, mainly based on histopathological analysis at a single postmortem time point. Recently, however, high-resolution microscopy and MR imaging technologies have become available that allow longitudinal imaging of the cerebral microcirculation with low invasiveness in the living brain during and after cerebral ischemia. The current symposium aims to summarize these recent findings and provide evidence that reperfusion failure may be caused by microvascular constriction, may be a delayed phenomenon, and may be closely related to neuroinflammation and cerebral edema formation, processes that are amenable to therapeutic intervention. Therefore, reperfusion failure may represent a valid therapeutic target in ischemic stroke.

Symposium 17

*Thursday, March 27, 2025
14:30 - 16:30, Lecture Hall 103*

Chairs: Nikolaus Plesnila, Munich

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| 14:30 | Opening Remarks |
| 14:35 | Turgay Dalkara, Ankara, Turkey
ROLE OF PERICYTES IN INCOMPLETE REPERFUSION AFTER CEREBRAL AND RETINAL ISCHEMIA (S17-1) |
| 15:00 | Leif Østergaard, Aarhus, Denmark
THE IMPACT OF CAPILLARY FUNCTION ON TISSUE OXYGENATION DURING ISCHEMIA AND REPERFUSION (S17-2) |
| 15:25 | Joshua Shrouder, Munich
ROLE OF PERICYTES FOR REPERFUSION FAILURE AFTER ISCHEMIC STROKE <i>IN VIVO</i> (S17-3) |
| 15:50 | Rebecca SieneI, Munich
BREATHING NEW LIFE INTO STROKE THERAPY: THE ANTI-INFLAMMATORY POWER OF INHALED NITRIC OXIDE (S17-4) |
| 16:05 | Nikolaus Plesnila, Munich
REPERFUSION FAILURE FOLLOWING RECANALIZATION AFTER ISCHEMIC STROKE (S17-5) |