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Titel des Beitrags: Cerebral blood flow reactivity in patients undergoing selective amygdalohippocampectomy for epilepsy of mesial temporal origin. A prospective randomized comparison of the trans-Sylvian and the transcortical approach.

Abstract: The aim of this study was to assess (1) whether vasoreactivity is altered in patients with epilepsy and (2) whether the two most commonly used approaches, the trans-Sylvian (TS) and the trans-cortical (TC) route, differ in their impact on cortical blood flow. Patients were randomized to undergo selective amygdalohippocampectomy (selAH) through a TC or TS route. Before and after selAH, we recorded microcirculation parameters on the superficial cortex surrounding the surgical corridor. Blood flow and velocity were measured using laser Doppler flowmetry and micro-Doppler, respectively. Cortical oxygen saturation (SO2) was measured using remission spectrophotometry under hypocapnic and normocapnic conditions. Ten patients were operated using the TS approach, and eight were operated via the TC approach. Vasomotor reactivity patterns measured with micro-Doppler were physiologically prior to selAH in both groups. After completion of surgery, a significant increase in SO2-values occurred in the TS group (before: 56.7± 2.2, after: 65.5 ± 3.0%SO2), but not in the TC group (before: 52.9 ± 5.2, after: 53.0 ± 3.7%SO2). The rate of critical SO2 values below 25% was significantly higher after the TC
approach (12.3%) compared to the TS approach (5.2%; p< 0.05). Our findings provide the first invasively measured evidence that patients with mesial temporal lobe epilepsy have preserved cerebral blood flow responses to alterations in CO2. In addition, local cortical SO2 was higher in the TS group than in the TC group after selIAH. This may be a sign of reactive cortical vessel dilation after proximal vessel manipulation associated with the TS approach. In contrast, the lower values of SO2 after the TC approach indicate tissue ischaemia surrounding the surgical corridor surrounding the corticotomy.