Title:

Intraoperative monitoring of tissue pressure oxygen (PtiO₂): report of a case

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Text:

Background: The advantages of intraoperative monitoring of tissue oxygen pressure (PtiO₂) for vascular neurosurgical procedure is to be reliable and immediate in obtaining information on the state of tissue oxygenation as a marker of ischemia in exposed vascular territory.

Case report: 75 year old woman with hypertension, with incidental finding aneurysm in right middle cerebral artery, M1. Following 4 years, with impossibility of interventional radiology treatment because of their location (Figure 1), is scheduled for surgery under general anesthesia.

Before the transitional clipping there was a gradual decline in PtiO₂, which coincided with a significant decrease in the amplitude of the left middle PEM Nv, and decrease in SBP and HR. After administration of 2 boluses of ephedrine 10 mg, she presented hemodynamic recovery potential and PtiO₂.

During the phase of temporal clamping PtiO₂ no alterations in, or potential became evident.

The patient remained stable throughout the procedure.

After surgery, the patient was admitted to the reanimation unit for 24 hours, being extubated in the early hours without showing neurological focus.

Discussion: The monitoring intraoperative PtiO₂ in the territories at risk of ischemia is very sensitive, providing real-time information, as we observed in our case, with decreased PtiO₂ and the drop in potential, which recovered spontaneously improving hemodynamically.

References:

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Learning points: There is little use of this and other invasive monitoring methods intraoperatively in vascular neurosurgery, despite not lead to additional trauma to the intervention itself; on the contrary, the PtiO₂ is accurate and provides real-time data that go beyond suggestive impressions neurosurgeon time-based temporary occlusion.