

Patient management algorithm combining processed electroencephalographic monitoring with cerebral and somatic near-infrared spectroscopy: a case series.

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PURPOSE: Cerebral oximetry is a monitoring tool used in the perioperative care of cardiac surgery patients to ensure adequate cerebral perfusion and oxygenation.

When combined with somatic oximetry, the differential diagnosis of cerebral desaturation can be better identified and managed more specifically, as somatic oximetry serves as a global or localized perfusion monitor (depending on its regional position). The use of processed electroencephalography (pEEG) in cardiac surgery could further guide the management of desaturation episodes, as reductions in pEEG activity without a change in the anesthetic agent level indicate potential cerebral ischemia. Continuous integration of multiple monitoring modalities are thus desirable to assess organ perfusion and organ function.

CLINICAL FEATURES: Four clinical cases are presented in which the combination of pEEG and cerebro-somatic oximetry assisted with understanding the mechanism of cerebral desaturation encountered during cardiac surgery.

CONCLUSION: Integrating combinations of different monitoring modalities such as cerebral and somatic oximetry with pEEG can help the diagnosis and treatment of organ malperfusion and related dysfunction.