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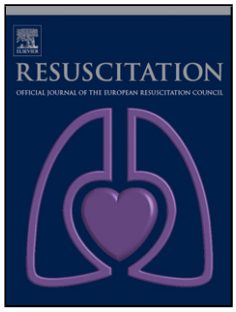

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Neurophysiological and neuroradiological multimodal approach for early poor outcome prediction after cardiac arrest.

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Abstract

Introduction: Prognosticating outcome after cardiac arrest(CA) requires a multimodal approach. However, evidence regarding combinations of methods is limited. We evaluated whether the combination of electroencephalography(EEG), somatosensory evoked potentials(SEPs) and brain computed tomography(CT) could predict poor outcome.

Methods: We screened our database regarding patients successfully resuscitated after CA, for whom EEG, SEPs and brain CT were available within 24 hours. EEG patterns were classified according to American Clinical Neurophysiological Society terminology; SEPs were graded accounting for the cortical responses of each hemisphere; and the grey matter/white matter(GM/WM) ratio was evaluated by brain CT. EEG patterns, SEP findings and GM/WM ratio (with a specificity of 100%) were, individually and in combination, related to poor outcome (death/unresponsive wakefulness state) at 6-month follow-up, using the cerebral performance categories(CPC).

Results: EEG, SEPs and brain CT were available in 183/273(67%) patients. Bilateral absent/absent-pathologic(AA/AP) cortical SEPs predicted a poor outcome with a sensitivity of 58.5%. A GM/WM ratio <1.21 predicted a poor outcome with a sensitivity of 50.4%. Isoelectric/burst-suppression

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