

**PROGNOSTIC VALUE OF AMPLITUDE INTEGRATED ELECTROENCEPHALOGRAPHY (AEEG) AND NEAR INFRARED SPECTROSCOPY (NIRS) IN COOLED INFANTS WITH HYPOXIC-ISCHEMIC ENCEPHALOPATHY (HIE)**

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**Background and aims:** Brain cooling (BC) represents the elective treatment in asphyctic newborns. aEEG and NIRS monitoring may help to evaluate changes in cerebral electrical activity and cerebral hemodynamics during hypothermia.

**Aims:** To evaluate the prognostic value of aEEG time course and NIRS data in asphyctic cooled infants.

**Methods:** 12 term neonates admitted to our NICU with a moderate-severe HIE underwent selective BC. aEEG and NIRS monitoring were started as soon as possible and maintained during the whole hypothermic treatment. Follow-up was scheduled at regular intervals; adverse outcome was defined as death, cerebral palsy (CP) or global quotient < 88.7 at Griffiths' Scale.

**Results:** 2/12 infants died, 2 developed CP, 1 was normal at 6 months of age and then lost at follow-up and 7 showed a normal outcome at least at 1 year of age. The aEEG background pattern at 24 hours of life was abnormal in 10 newborns; only 4 of them developed an adverse outcome, whereas the 2 infants with a normal aEEG developed normally. In infants with adverse outcome NIRS showed a higher Tissue Oxygenation Index (TOI) compared with those with normal outcome (80.0±10.5% vs 66.9±7.0%, p=0.057; 79.7±9.4% vs 67.1±7.9%, p=0.034; 80.2±8.8% vs 71.6±5.9%, p=0.069 at 6, 12 and 24 hours of life, respectively).

**Conclusions:** The aEEG background pattern at 24 hours of life loses its positive predictive value after BC implementation; TOI could be useful to early predict non responder infants that may benefit from other innovative therapies.