

EARLY ABNORMAL AEEG ACTIVITY IS ASSOCIATED WITH ADVERSE SHORT-TERM OUTCOME IN PREMATURE INFANTS

K. Mitsakis, V. Soubasi, K. Sarafidis, E. Diamanti, M. Griva, V. Drossou

1st Dept of Neonatology, Aristotle University of Thessaloniki, Hippokration Hospital, Thessaloniki, Greece

Aim: To identify specific early aEEG features that could be used as prognostic markers for severe brain injury in premature infants.

Methods: In 115 preterm infants, 25-32 wks' GA at birth, the aEEG recordings during the first 72 hours of life were correlated with head ultrasonographic(HUS) findings. Continuity(Co), sleep-wake cycling(Cy) and lower border(LB) of the aEEG were evaluated by semiquantitative analysis, applying pre-established criteria. The brain ultrasound was classified as seriously abnormal [intraventricular hemorrhage(IVH) 3-4, periventricular leucomalacia(PVL)], mildly abnormal (IVH 1-2, mild/moderate echodensities) or normal.

Results: The infants were divided in four groups based on brain injury severity. Group A (n=72, normal HUS), group B (n=16, IVH 1-2 or mild/ moderate echodensities), group C (n=21, IVH 3-4) and group D (n=6, PVL). 18 infants (16 of group C and 2 of group D) died during hospitalisation. Significantly lower values of all aEEG features were found in group C infants [Co(p:0.003), Cy(p:0.003), LB(p:0.046)]. The presence of pathological tracings (burst-suppression, continuous low voltage, isoelectric activity) or discontinuous low-voltage, the absence of Cy and LB < 3 μ V in the initial aEEG displayed a sensitivity of 88.9%, 63% and 51.9% respectively, for severe brain injury or death. Logistic regression analysis of aEEG features after controlling for any potential confounding influence of GA, revealed significant relationship between Co and the presence of severe injury(83.19% of cases with early adverse outcome could correctly classified using Co).

Conclusion: Pathological tracings or discontinuous low-voltage in the initial aEEG are predictive for poor short-term outcome in VLBW neonates.