

Documents

El-Dib, M.^a, Abend, N.S.^b, Austin, T.^c, Boylan, G.^d, Chock, V.^e, Cilio, M.R.^f, Greisen, G.^g, Hellström-Westas, L.^h, Lemmers, P.ⁱ, Pellicer, A.^j, Pressler, R.M.^k, Sansevere, A.^l, Tsuchida, T.^l, Vanhatalo, S.^m, Wusthoff, C.J.ⁿ, Bonifacio, S.^o, Wintermark, P.^p, Aly, H.^q, Chang, T.^r, Chau, V.^s, Glass, H.^t, Lemmon, M.^u, Massaro, A.^v, Wusthoff, C.^w, deVeber, G.^x, Pardo, A.^y, McCaul, M.C.^z, on behalf of the Newborn Brain Society Guidelines and Publications Committee^{aa}

Neuromonitoring in neonatal critical care part I: neonatal encephalopathy and neonates with possible seizures
(2023) *Pediatric Research*, 94 (1), pp. 64–73. Cited 3 times.

DOI: 10.1038/s41390-022-02393-1

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Abstract
 Abstract: The blooming of neonatal neurocritical care over the last decade reflects substantial advances in neuromonitoring and neuroprotection. The most commonly used brain monitoring tools in the neonatal intensive care unit (NICU) are amplitude integrated EEG (aEEG), full multichannel continuous EEG (cEEG), and near-infrared spectroscopy (NIRS). While some published guidelines address individual tools, there is no consensus on consistent, efficient, and beneficial use of these modalities in common NICU scenarios. This work reviews current evidence to assist decision making for best utilization of neuromonitoring modalities in neonates with encephalopathy or with possible seizures. Neuromonitoring approaches in extremely premature and critically ill neonates are discussed separately in the companion paper. Impact: Neuromonitoring techniques hold promise for improving neonatal care. For neonatal encephalopathy, aEEG can assist in screening for eligibility for therapeutic hypothermia, though should not be used to exclude otherwise eligible neonates. Continuous cEEG, aEEG and NIRS through rewarming can assist in prognostication. For neonates with possible seizures, cEEG is the gold standard for detection and diagnosis. If not available, aEEG as a screening tool is superior to clinical assessment alone. The use of seizure detection algorithms can help with timely seizures detection at the bedside. © 2022, The Author(s), under exclusive licence to the International Pediatric Research Foundation, Inc.

Index Keywords
 brain disease, clinical decision making, continuous electroencephalography, critically ill patient, detection algorithm, human, infantile spasm, intensive care, near infrared spectroscopy, neuromonitoring, newborn, newborn disease, prematurity, Review, seizure, brain disease, electroencephalography, intensive care, neonatal intensive care unit, newborn disease, procedures, seizure; Brain Diseases, Critical Care, Electroencephalography, Humans, Infant, Newborn, Infant, Newborn, Diseases, Intensive Care Units, Neonatal, Seizures

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Publisher: Springer Nature

ISSN: 00313998
CODEN: PEREB
PubMed ID: 36476747
Language of Original Document: English
Abbreviated Source Title: Pediatr. Res.

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