RATING SCALE FOR NEONATAL ENCEPHALOPATHY (NE - RS)

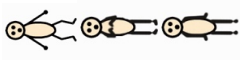
Alertness

Apply the stimuli with increasing intensity and leave enough time between stimuli to observe the infant's complete reaction

0	1	2	6	8
Wakes up without difficulty and keeps alert for more than 30 seconds	Wakes up with some difficulty to non-noxious stimuli. Alertness is slightly shortened	Difficulty in waking up to noxious stimuli. When awake stays alert for a few seconds (≤ 6 seconds)	Wakes up with great difficulty to noxious stimuli, quickly falls asleep	Not waking up to noxious stimuli

Posture (muscular tone)

Infant lying supine; look at the position of legs and arms

0	1	2	6	8
				
Adequate flexion and adduction of the limbs	Poor flexion and adduction in the upper limbs	Poor flexion and adduction in both upper and lower limbs	Severe hypotonia or tonic posture (non-sustained)	Flaccid or sustained tonic posture (decerebration or decortication)

Spontaneous motor activity

Without stimulating the infant, pay attention to the spontaneous movement pattern and whether it involves different parts of the body in different directions and speeds (complexity & variability), and if movements seem to be linked (fluidity)

0	1	2	6	8
Fluent, variable and complex movements	Fluent and variable but excessive tremor and startles	Decreased; monotonous with poor variability and complexity	Greatly diminished activity	Absence of activity or continuous tremor at rest

Motor response elicited by stimuli

Pay attention to the motor response following gradual stimuli

0	1	2	6	8
Vigorous, alternating limb movements	Normal motor response but few movements	Withdrawal movements involving more than only the stimulated limb	Withdrawal response involving only the stimulated extremity	Absent or stereotyped; can mimic decorticate or decerebrate posturing

Myotatic reflexes

Pay attention to the trigger threshold, the amplitude of the motor response, and the extension of the reflexogenic zone

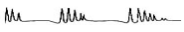
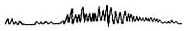
Patellar reflex; place the knee slightly bent and tap on the tendon.

Adductor reflex; place a finger over the tendon and tap on it.

Achilles reflex; tap a finger placed over the distal plantar surface of the foot.

0	1	2	6	8
Normal	Hyperactive	Hypoactive	Absent	—

Breathing Pattern

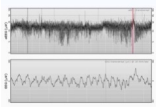
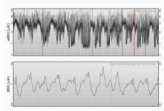
0	1	2	6	8
Spontaneous (A) or Kussmaul (B)	—	Periodic breathing	—	Central hyperpnea (A), apneustic (B), Biot (C), ataxic (D) or apnea
A				A 
B 				B 
				C 
				D 

Clinical seizures

0	1	2	6	8
Absent	—	—	Single (≤ 1/hour)	Repeated (> 1/h) or status

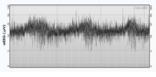
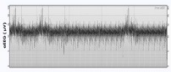
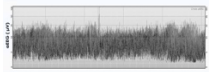
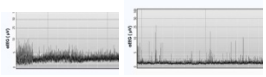
Amplitude-integrated electroencephalographic seizures

Confirmation on raw EEG is mandatory to identify repetitive spikes or sharp-wave activity with a duration >10 seconds

0	1	2	6	8
Absent	—	—	Single (≤ 1/hr)	Repeated (>1/h) or status
				

Amplitude-integrated electroencephalogram background pattern*

Pay attention to the band pattern and the lower and upper margins of the amplitude (voltage) of the EEG activity

0	1	2	6	8
CNV. SWC	CNV. No SWC	Discontinuous voltage	Burst-suppression	Low voltage or flat trace
				

—, not applicable; CNV: continuous normal voltage; h: hour; SWC: sleep-wake cycling

**Continuous normal voltage*: narrow band, continuous and variable activity with lower margin at >5µV and upper margin at 10-50µV. *Discontinuous voltage*: wide band, discontinuous activity with variable lower margin at <5µV and upper margin at >10µV. *Burst-suppression*: narrow band with amplitude at <5µV without variability and bursts with amplitude >25µV. *Continuous low voltage*: narrow band with lower margin at <5µV and upper at <10µV. *Flat trace*: isoelectric trace with both lower and upper margins at <5µV. *Sleep-wake cycling*: smooth cyclic variations of the amplitude with periods of broader (quite sleep) and narrower (wakefulness or active sleep) bandwidth.