



Bilaga 3 till rapport

1 (5)

EEG som stöd för diagnosen total
hjärninfarkt hos barn yngre än två år
– en systematisk litteraturöversikt,
rapport 290 (2018)

Bilaga 3 Tabell, beskrivning av studier

Table 1 Diagnostic accuracy of EEG for brain death in infants two years or younger.

First author Country Year Reference	Population	Index test, EEG	Reference test, BD	Flow and timing
<p>Ashwal USA 1993 [22]</p>	<p>Study design Retrospective, chart review of patients diagnosed with BD</p> <p>Patients n=52 pediatric heart donor patients <i>Age:</i> <1 week: n=5 1 week to 2 months: n=12 2 months to 1 year: n=19 >1 year to 9 years: n=16</p> <p>Causes of BD Trauma (n=17), asphyxia (n=24), CVH (n=4), meningitis (n=4), herniation (n=3)</p>	<p>EEG Procedure not described Performed in n=33, age not reported</p> <p>Conducting EEG Not reported</p>	<p>Criteria According to BD guidelines in children (Guidelines for the Determination of Brain Death in Children. Pediatrics 1987;80:298-300): coma, fixed dilated pupils, absent brain stem reflexes and apnea.</p> <p>Apnea challenge test Performed for n=27 patients, including n=3 with residual EEG activity where absence of respiratory drive was documented Discontinued in 10% because of CV instability</p> <p>Competence and number of clinicians behind the BD diagnosis Documented by two physicians; the diagnosis was established by a child neurologist or neurosurgeon (n=47) or a pediatric intensivist or pediatrician (n=5)</p>	<p>Average duration of coma before diagnosis of BD 1.5 days (+/-1.1)</p> <p>Comments Mean age of patients who had EEG activity was 2 weeks. 46/52 patients met Guidelines criteria</p>

<p>Drake USA 1986 [23]</p>	<p>Study design Retrospective, chart review</p> <p>Patients n=61 patients with suspected BD at PICU <i>Age:</i> 0 to 2 months: n=7 2 months to 1 year: n=16 1 to 5 years: n=28 >5 years: n=10</p> <p>Reasons for admission Drowning (n=13), trauma (n=20), asphyxia (n=5), infection (n=7), CNS hemorrhage (n=3), other reasons (n=13)</p>	<p>EEG According to the procedures established by AAE Performed in n=47 patients; age not reported</p> <p>CBF Portable scintigraphy technique</p> <p>Conducting EEG Not reported</p>	<p>Criteria Drawn from several current guidelines and modified by clinical experience</p> <p>Apnea challenge test Details not reported</p> <p>Competence and number of clinicians behind the BD diagnosis Not reported</p>	<p>Time from insult until suspicion of BD 29.2 hours</p> <p>Time at ICU before confirmation of BD 61.5 hours (53/61 patients)</p> <p>Comments 8/61 patients died from cardiopulmonary arrest or hypotension</p>
<p>Gençpinar Turkey 2015 [27]</p>	<p>Study design Retrospective, chart review of patients admitted with loss of brain stem function and deep coma</p> <p>Patients n=28 at the dept of pediatrics <i>Age:</i> ≤2 years: n=7 2–5 years: n=6</p> <p>Causes of BD Asphyxia (n=13), CNS hemorrhage (n=10), increase in ICP (n=3), acute hydrocephalus (n=2)</p>	<p>EEG Procedures not described. Performed in n=4 patients, age above 5 years</p> <p>Conducting EEG Not reported</p>	<p>Criteria According to Turkish Guidelines. The physical examination should be evaluated twice at 12–48 hours interval and confirmed with at least one ancillary test and an apnea test</p> <p>Apnea challenge test Performed in 25/28 patients; 11/13 under age 5. Not used in n=3 patients because of hemodynamic instability</p> <p>Competence and number of clinicians behind the clinical diagnosis Not reported</p>	<p>Time at ICU before diagnosis of BD Not reported</p>

<p>Parker Canada 1995 [28]</p>	<p>Study design Retrospective, chart review of children that died at the hospital during a five-year period</p> <p>Patients n=60 BD patients at the PICU Age: <8 days: n=6 8 days to 1 year: n=11 1 year to 5 years: n=21 5 years to 16 years: n=22</p> <p>Causes of BD Asphyxia (n=4), trauma (n=24), infection (n=3), hypoxic-ischemic encephalopathy (n=14), other reasons (n=15)</p>	<p>EEG Procedure not described. Performed in n=9 patients; age not reported</p> <p>Conducting EEG Not reported</p>	<p>Criteria According to Canadian Guidelines [4]. Ancillary testing not required</p> <p>Apnea challenge test Could not be performed in n=11 patients due to severe lung disease</p> <p>Competence and number of clinicians behind the BD diagnosis Not reported</p>	<p>Time at ICU before diagnosis of BD Median 43 to 49 hours depending on age group</p>
<p>Ruiz-Garcia Mexico 2000 [21]</p>	<p>Study design Retrospective, chart review of all clinically brain-dead patients for whom at least two of three studies provided confirmation of BD</p> <p>Patients n=125 at the dept of pediatrics Age: (range 1 week to 17 years) <2 years: n=64 2–6 years: n=25</p>	<p>EEG According to international guidelines. Performed in n=122 patients.</p> <p>Conducting EEG Not reported</p>	<p>Criteria According to Mexican Health law: two compatible physical examinations and two isoelectric EEG:s at least 24 h apart (not specific for children)</p> <p>Apnea challenge test Not specified whether the test was omitted for some children</p>	<p>Time at ICU before diagnosis of BD Confirmed in 97% of patients within 48 hours</p> <p>Time between clinical diagnosis of BD and EEG Within 24 hours after the clinical diagnosis</p>

	>6 years: n=36 Causes of BD Infections (n=43), trauma (n=26), neoplasms (n=22)		Competence and number of clinicians behind the clinical diagnosis One pediatric neurologist	
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AAE = American Association of Electroencephalographers; **BD** = Brain death; **CBF** = Cerebral Blood Flow;
CVH = Cerebro vascular hemorrhage; **CV** = Cardiovascular; **ECS** = Electro cerebral silence; **ICP** = Intracranial pressure;
PICU = Pediatric intensive care unit