

ABSTRACT ON ANCILLARY TESTING, METHOD AND CHALLENGES

The essential clinical diagnostic components of brain death must include evidence for an established etiology capable of causing brain death, two independent clinical confirmations of the absence of all brainstem reflexes and an apnea test, and exclude confounders that can mimic brain death. Numerous confounders can render the clinical neurological determination of death (NDD) virtually impossible. As such, clinicians must rely on additional ancillary testing.

There are two patterns of brain death, those associated with raised intracranial pressure and those not associated with raised intracranial pressure.

The most common pattern is characterized by an increase of intracranial pressure to a point which goes above the mean arterial pressure, resulting in no net cerebral blood flow. Tests proving absent cerebral blood flow are appropriate for this pattern such as Catheter Cerebral Angiography, Computed Tomogram Angiography of the Brain and Radionuclide studies.

The second pattern is typified by intracranial pressure not exceeding mean arterial pressure but as there is an inherent pathology that affects brain tissue on a cellular level, brain death may occur. In this pattern cerebral blood flow is preserved, therefore ancillary tests relying on the lack of cerebral blood flow such as Catheter Cerebral Angiography/ Radionuclide studies would result in false negative. Hence, ancillary tests in this situation should evaluate neuronal function and viability such as Electroencephalogram and evoked potential studies.

Challenges remain in ancillary testing for the diagnosis of brain death. Lack of uniformity in the guidelines of determining brain death even in the more advanced countries with stronger research and clinical expertise. Similar lack of agreement is observed in the role/use of ancillary tests amongst the hospitals in Malaysia. A National consensus is very much needed to tackle this complex and sensitive matter in the determination in brain death.