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Letter to the Editor

The Role of Ancillary Tests in Brain Death Diagnosis: A Focus on Clinical Evaluation and Modern Techniques

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To the Editor,

I read with great interest the article by Ölmeztürk Karakurt et al. on the characteristics of patients diagnosed with brain death in the intensive care unit (ICU).[1] The authors of the study conducted a retrospective review of patients who had been diagnosed with brain death in the ICU during the last 12 years. They examined the patients' demographic details, diagnoses at admission, data on apnea tests and cardiac arrest, ancillary tests conducted for diagnosis, and status regarding organ donation consent.

The paper does not, however, discuss why auxiliary testing is necessary for the retrospective examination of brain death findings. The article mentions some of the ancillary tests that are done in the clinic, but we think it should include all of the current ancillary tests in order to be a reference for future research.

For adults, a valid and thorough physical examination is thought to be both sufficient and superior for identifying brain death. Ancillary tests should never take precedence over clinical evaluations. Ancillary tests ought to be employed solely in situations where it is not possible to fully assess the cranial nerves, when neuromuscular paralysis is present, when patients are deeply sedated, when the apnea test is not feasible, when clinical evaluation is not possible for any reason, or when a shorter observation period is desired.[2]

Two primary categories of tests can be employed when additional testing is necessary to validate the diagnosis of brain death: cerebral blood flow assessments and electrophysiological tests. The gold standard for cerebral blood flow examinations is cerebral angiography; other procedures include transcranial doppler (TCD), magnetic resonance angiography (MRA), computed tomographic angiography (CTA), and single-photon emission computed tomography (SPECT). Electroencephalography (EEG) and evoked potentials (EPs) are two examples of electrophysiological examinations.[3] The article mentions the use of CTA and EEG as ancillary tests in the analyzed cases. It also highlights the potential benefits of using TCD for comparison with other countries.

One of the ancillary tests related to cerebral blood flow that was not mentioned in the article is digital subtraction angiography (DSA). However, because of its invasive character and the possibility that it will not always produce conclusive results, it is not widely used. SPECT with 99mTc-labeled hexamethylpropyleneamine oxime (HMPAO) or ethylene cysteine diethyl ester (ECD) is a highly effective, quick, and dependable auxiliary diagnostic for identifying brain death. Gadolinium-enhanced MRA has been discovered to be particularly effective in demonstrating the absence of intracranial circulation while displaying normal extracranial circulation in brain death.[4,5]

In conclusion, brain death diagnosis is a condition that necessitates a very delicate approach, with the priority being clinical evaluation during the diagnostic procedure. The necessity of auxiliary tests needs to be clearly established. All accessible tests should be known before considering auxiliary testing, and the best test for the patient should be chosen and used.

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