The Nerve! Readers Speak

Reader Response: Practice Current: When do you order ancillary tests to determine brain death?

Calixto Machado, and Mario Estévez (Havana, Cuba)

Neurology: Clinical Practice October 2018 vol. 8 no. 5 364 doi:10.1212/CPJ.0000000000000537

We recently reported a case (case 3 in our article)[1] contributing to the discussion of using ancillary tests in brain death.[2] This case showed brain death clinical features leading to a death certification. We studied the case 9 months later.[1] We found preservation of intracranial structures, with a huge lesion at the brainstem.[1] Conceptually, brain death is characterized by absence of cerebral blood flow.[3] Conservancy of brain structures rejects brain death diagnosis.[1,3] EEG signal was found in this case. EEG signal may persist in posterior fossa catastrophes.[2] Using heart rate variability (HRV) methodology, we found preservation of all HRV bands, contrary to reports in brain death.[4] This case also showed autonomic reactivity to "mother talks" stimulation. This is a demonstration of autonomic CNS activity preservation.[1] Our patient showed brain death clinical features, but the use of ancillary tests denied this diagnosis. We claimed that this is a new state, not previously classified, of a disorder of consciousness.[1] Is there a diagnosis of any disease in which a confirmatory test (blood test, imaging) is not used, considering that pitfalls in clinical examination can occur? Brain death determination is the most challenging diagnosis for a physician. Why not use a confirmatory test?[1,5]

1. Machado C, DeFina PA, Estévez M, et al. A reason for care in the clinical evaluation of function on the spectrum of consciousness. J Funct Neurol Rehabil Ergon 2017;7:43–53.
2. Robbins NM, Bernat JL. Practice Current: when do you order ancillary tests to determine brain death? Neurol Clin Pract 2018;8: 266–274.
3. Bernat JL. On irreversibility as a prerequisite for brain death determination. Adv Exp Med Biol 2004;550:161–167.
4. Su CF, Kuo TB, Kuo JS, Lai HY, Chen HI. Sympathetic and parasympathetic activities evaluated by heart-rate variability in head injury of various severities. Clin Neurophysiol 2005;116:1273–1279.
5. Machado C, Estévez M, Portela L. Improving uniformity in brain death determination policies over time. Neurology 2017;88:562–568.

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Neurology: Clinical Practice October 2018 vol. 8 no. 5 364 doi:10.1212/CPJ.0000000000000539

We thank Machado and Estévez for their comment on our article.[1] We agree that ancillary tests clearly have a role in the diagnosis of brain death, but the issue is complex, as the 3 experts pointed out in their commentaries. We also agree that the case 3 they cited in their article (Jahi McMath) is an important case that requires further study to interpret correctly.[2]

1. Robbins NM, Bernat JL. Practice Current: when do you order ancillary tests to determine brain death? Neurol Clin Pract 2018;8: 266–274.
2. Machado C, DeFina PA, Estévez M, et al. A reason for care in the clinical evaluation of function on the spectrum of consciousness. J Funct Neurol Rehabil Ergon2017;7:43–53.

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Reader Response: FACETS of health disparities in epilepsy surgery and gaps that need to be addressed

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Neurology: Clinical Practice October 2018 vol. 8 no. 5 365 doi:10.1212/CPJ.0000000000000540

I read with interest the commentary by Nathan and Gutierrez[1] on the causes of health disparities in epilepsy surgery and how these can be addressed. Many patients initially resist epilepsy surgery for the simple reason that it is surgery. I have patients who are good candidates for resective epilepsy surgery and in spite of my best efforts they have steadfastly resisted the surgical option. Maintaining continuity of care over years with reassurance and gentle persuasion, I have succeeded in guiding some of these patients towards a surgical option with gratifying results. It is important for us physicians to remember that medicine is a field which requires dedication and perseverance.

1. Nathan CL, Gutierrez C. FACETS of health disparities in epilepsy surgery and gaps that need to be addressed. Neurol Clin Pract 2018;8: 340–345.

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Author Response: FACETS of health disparities in epilepsy surgery and gaps that need to be addressed

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Neurology: Clinical Practice October 2018 vol. 8 no. 5 365 doi:10.1212/CPJ.0000000000000538

We appreciate the comment by Dr. Sethi highlighting the reluctance of some patients to obtain surgery. The disparity seen in epilepsy surgery utilized by African American and Hispanic patients compared to non-Hispanic white patients suggests that specific factors disproportionately affect these groups. We proposed FACETS as a framework to begin to understand and study these potential factors.[1] We agree that dedication, perseverance, and continuity of care are valuable interventions that may drive epilepsy surgery. We are also concerned that delay in epilepsy surgery may lead to preventable morbidity and mortality.[2] We should actively work at breaking down the barriers that cause delay and underutilization of epilepsy surgery for all patients with drug-resistant epilepsy.

1. Nathan CL, Gutierrez C. FACETS of health disparities in epilepsy surgery and gaps that need to be addressed. Neurol Clin Pract 2018;8: 340–345.
2. Choi H, Sell RL, Lenert L, et al. Epilepsy surgery for pharmacoresistant temporal lobe epilepsy: a decision analysis. JAMA 2008;300: 2497–2505.

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Reader Response: Exercise for cognitive brain health in aging: A systematic review for an evaluation of dose

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Neurology: Clinical Practice October 2018 vol. 8 no. 5 365–366 doi:10.1212/CPJ.0000000000000533

One of the 3 aims of the review by Gomes-Osman et al.[1] was to identify consistent patterns of exercise on domains of cognition. The authors are to be commended for such an ambitious task. The creation of cognitive composite scores requires careful attention to eliminate bias

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and to ensure that outcomes are theoretically valid and meaningful. In their study, the authors grouped neuropsychological tests from the reviewed studies into 5 outcomes: executive function, processing speed/attention, global cognition, working memory, and visuospatial processing/memory. However, the validity of these broad cognitive domains is uncertain; no cognitive model or theory was cited as a rationale for their creation, their definition was not described, and no data were provided to show which neuropsychological tests were included in each domain. Consequently, the patterns of cognitive improvement with exercise remain uncertain. The large number of neuropsychological tests used across studies poses unique challenges for systematic reviews. However, extensive factor analytic work has provided evidence-based "cognitive maps" akin to the periodic table of elements.[2-4] This framework can be used to guide the handling and analysis of cognitive outcomes in reviews, helping to eliminate bias and ensuring that cognitive domains are theoretically valid and meaningful.[5]

1. Gomes-Osman J, Cabral DF, Morris TP, et al. Exercise for cognitive brain health in aging: a systematic review for an evaluation of dose. Neurol Clin Pract 2018;8:257–265.
2. Carroll JB. Human Cognitive Abilities: A Survey of Factor Analytic Studies. New York: Cambridge University Press; 1993.
3. Carroll JB. The three-stratum theory of cognitive abilities. In: Flanagan DP, Harrison PL, eds. Contemporary Intellectual Assessment: Theories, Tests and Issues, 3rd ed. New York: Guilford Press; 2012.
4. McGrew KS. The Cattell-Horn Carroll theory of cognitive abilities: past, present and future. In: Flanagan DP, Harrison PL, eds. Contemporary Intellectual Assessment: Theories, Tests and Issues, 2nd ed. New York: The Guilford Press; 2005.
5. Pase MP, Stough C. An evidence based method for examining and reporting cognitive processes in nutrition research. Nutr Res Rev 2014;27:232–241.

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Author Response: Exercise for cognitive brain health in aging: A systematic review for an evaluation of dose

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Neurology: Clinical Practice October 2018 vol. 8 no. 5 366–368 doi:10.1212/CPJ.0000000000000532

We thank Dr. Pase for his comments regarding our systematic review.[1] We share Dr. Pase's concern that a very large number of different cognitive tasks have been used in past studies on the effects of exercise, which poses substantial challenges to systematic reviews. Furthermore, as pointedly stated by Colcombe and Kramer[2] in a review of exercise and cognitive function, considerable overlap in cognitive constructs exists. We appreciate Dr. Pase's suggestion of considering the framework offered by cognitive maps and agree with their promise and value. Having the ability to prescribe the correct exercise dose for a specific cognitive domain would provide a wonderful tool for clinicians that would push the field beyond theoretical status into an established, evidence-based treatment.

Providing an exhaustive and definitive classification of cognitive domains modulated by exercise was beyond the scope of our review. The primary objective was to analyze consistent patterns in the measures of exercise for an evaluation of dose as a first step towards evidence-based prescriptions of exercise. Consequently, when assessing the consistent effects of exercise on different cognitive domains, we felt that it was most appropriate to align the methods with previously published classifications of cognitive domains within the exercise literature.[2,3] As stated in the methods, a board-certified, PhD-trained clinical neuropsychologist oversaw the classifications. We agree that a list of cognitive tasks that met each cognitive domain (similar to that presented in Smith et al.[3]) is helpful (table).

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