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April 30, 2014

◦ Poster Session IV

▪ Practice, Policy, and Ethics: Stroke, Critical Care, and Other

Re-evaluating Brain Death: The Potential for Treatment and Recovery after Brain Injury (P4.285)

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Abstract

ABSTRACT

Objective: Describe a comprehensive multi-modal approach to reversing brain death. **Background:** Historically, treating coma, vegetative (VS) or minimally conscious states (MCS) is rarely attempted due to poor prognosis, especially after 3 months.^{2,3,4,5} Trials of drugs, transcranial magnetic or direct current stimulation have suggested benefit 6-8 but the first aggressive, multimodal approach (N=41) demonstrated 78% to 86% of VS and 100% MCS subjects "emerged" under the International Brain Injury Foundation's Advanced Care Protocol (ACP).³ This same ACP was here used in the first ever reversal of brain death (BD). **Methods:** Four neurologists diagnosed a female, aged 28 as brain dead (BD) following overdose-induced (quetiapine, diazepam) asystole. No cooling protocol ensued; isoelectric EEG and absence of brainstem reflexes, respiratory drive and motor response to noxious stimuli correlated with loss of CT grey-white differentiation. At five months our team noted Bispectral Index of 15 (0-100 consciousness scale), essentially isoelectric QEEG, malacic corpus callosum, brainstem without cortical laminar necrosis on MRI and trace MRA flow. Nutraceuticals (e.g. vitamins, amino acids, antioxidants, neurotransmitter precursors); various stimulation (median nerve (MNS), transcranial direct current (tDCS) and cranial electric (CES)) and off-label pharmacotherapies to enhance neurotransmission were added. **Results:** The following changes evolved over three to six weeks on the ACP. QEEG recorded robust, differentiated activity; BIS exceeded 80 sustained for 20 after CES. Vital signs coupled to noxious stimuli; body temperature stabilized. Evoked potentials correlated to familiar voices; desmopressin intervals increased from 18 to 32 hours; head lateralized to mother's voice; semi-purposeful finger movements emerged with inconsistent 'thumbs-up' to command. **Conclusions:** Treatment-induced reversal of BD was evidenced by functional recovery across several domains. ACP neuromodulation optimizes cerebral functioning: electrical stimulation increases metabolic coupling; nutraceuticals promote healing, repair and neurotransmitter production while attenuating inflammatory cascades and free-radical damage. BD may not be definitively irreversible and deserves therapeutic consideration.

Disclosure: Dr. Defina has nothing to disclose. Dr. Zakrzewski has nothing to disclose. Dr. Prestigiacomo has nothing to disclose. Dr. Machado has nothing to disclose. Dr. Bernad has nothing to disclose. Dr. Halper has nothing to disclose. Dr. Fellus has nothing to disclose.

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