

Teleneurology-enabled determination of death by neurologic criteria after cardiac arrest or severe neurologic injury

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Abstract-

ObjectiveTo determine whether providing teleneurology (TN) consultations aiding in determination of death by neurologic criteria (DNC) to a bedside intensivist is feasible and whether timely access and expert input increase the quality of the DNC examination and identification of potential organ donors, we reviewed retrospective data related to outcomes of such consultations.**Methods**Between November 2017 and March 2019, TN consults were requested for sequential comatose patients in the intensive care unit (ICU). We recorded patients' demographic information, causes leading to coma or suspected DNC, and the results of TN consultations. We obtained data on the number of referrals to the organ bank and number of organ donors.**Results**Ninety-nine consults were performed with a median time from request to start of the consult of 20.2 minutes (interquartile range 5.4–65.3 minutes). Eighty consults were requested for determination of prognosis, whereas 19 consults were requested for supervision of the DNC examination. In 1 of 80 (1.2%) prognostication consults, the patient was determined by the neurologist to require assessment of DNC and was found to meet DNC criteria; determination of DNC occurred in 11 of the 19 (57.9%) consultations for a supervised DNC examination. In a comparison of the pre-TN (94 months) and post-TN (17 months) periods, there was 2.56-fold increase in the proportion of patients meeting DNC criteria who were medically suitable for donation (pre-TN 8.9% vs post-TN 21.1%, $p = 0.02$) and a 2.12-fold increase in the proportion of donors (pre-TN 6.14% vs post-TN 13.1%, $p = 0.14$).**Conclusions**It is feasible to perform TN consultations for patients with severe neurologic damage and to allow expert supervision for DNC examination. Having a teleneurologist as part of the ICU assessment team helped differentiate severe neurologic deficits from DNC and was associated with increase in organ donation.

Index Terms- Telemedicine, Teleneurology, Brain death diagnosis.

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