

# New insights on the neurobiology of dying

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A new *Annals of Neurology* study provides insight into the neurobiology of dying. For the study, investigators performed continuous patient monitoring following Do Not Resuscitate - Comfort Care orders in patients with devastating brain injury to investigate the mechanisms and timing of events in the brain and the circulation during the dying process.

The findings may be helpful for developing treatment strategies of [cardiac arrest](#) and stroke that may complement efforts to reestablish circulation, and also inform the debate of organ donation after cardio-circulatory death, where death is declared between two and ten minutes following the cessation of circulatory function.

"After [circulatory arrest](#), spreading depolarization marks the loss of stored electrochemical energy in brain cells and the onset of toxic processes that eventually lead to death. Importantly, it is reversible - up to a point - when the circulation is restored," said lead author Dr. Jens Dreier, of Universitätsmedizin Berlin, in Germany.

"There are no direct implications for patient care today. Particular challenges include the slowness of this wave that hampers its visibility in normal EEG recordings; however, this discovery may lead to improved diagnostic and treatment procedures in the future, following Max Planck's motto that 'insight must precede application'."

**More information:** Jens P. Dreier et al, Terminal spreading depolarization and electrical silence in death of human cerebral cortex,

*Annals of Neurology* (2018). [DOI: 10.1002/ana.25147](https://doi.org/10.1002/ana.25147)

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