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Commentary

Monitoring of ECG in Post Traumatic Epilepsy by Using Animal Models

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DESCRIPTION

Post-Stressful Epilepsy (PTE) studies in massive animal fashions have been limited. Recent advances in neocortical microscopy have made viable new insights into neocortical PTE. However, it's miles very tough to engender convincing neocortical PTE in rodents. Thus, massive animal fashions that broaden neocortical PTE can also additionally offer beneficial insights that still may be greater corresponding to human patients. Because gyrencephalic species have extended latent periods, long-time period video EEG recording is required. Here, we document a completely subcutaneous EEG implant with synchronized video in freely ambulatory swine for up to fourteen months for the duration of epileptogenesis following bilateral cortical effect accidents or sham surgical operation.The blessings of this device encompass the provision of a commercially to be had device that is straightforward to install, a low failure fee after surgical operation for EEG implantation, radiotelemetry that permits non-stop tracking of freely ambulating animals, top notch synchronization to video to EEG, and a strong sign to noise ratio. The risks of this device on this species and age are the accretion of cranium bone which completely embedded a subset of cranium screws and EEG electrodes, and the lack of ability to arrange the EEG electrode array. These risks can be triumph over with the aid of using splicing a subdural electrode strip to the electrode leads in order that cranium increase is much less probably to intrude with long-time period sign seize and with the aid of using putting implants for a greater significant montage. This commercially to be had device on this bilateral cortical effect swine version can be beneficial to a extensive variety of investigators analyzing epileptogenesis in PTE.

POST TRAUMATIC EPILEPSY

Patients who survive the early stages of Traumatic Brain Injury (TBI) are usually at increased risk of developing disability and comorbidity later in life, and TBI has a profound effect on their longevity. Post-Traumatic Epilepsy (PTS) and Post-Traumatic Epilepsy (PTE) are common in this scenario and are debilitating complications of TBI.

In terms of onset time, PTS is classified as "Early" Post-Traumatic Epilepsy (EPTS) if it occurs within 7 days of the event, and "Late" Post-Traumatic Epilepsy (LPTS) if it occurs more than 7 days later. It is classified into. This cutoff reflects the differences in the causative mechanisms and the risk of subsequent seizures. EPTS5, also known as acute symptomatic seizures, is associated with a primary injury mechanism that temporarily lowers the seizure threshold. Instead, LPTS is characterized by persistent neurobiological changes resulting from secondary damage with a biochemical cascade of epilepsy development mechanisms which determines the risk of subsequent seizures. Given the recent clinical redefinition of epilepsy by the International League Against Epilepsy (ILAE) the risk of recurrent seizures after one uninduced seizure more than 7 days after TBI considers LPTS to be epileptic. It's high enough for. Therefore, the term LPTS is often used interchangeably with PTE. The overall incidence of PTE in inpatients is approximately 3-5%, but accounts for 10-20% of symptomatic epilepsy in the general population and 5% of all epilepsy.

Acute seizures have a profound effect on the development of additional brain damage. In particular, EPTS appears to increase morbidity and mortality in the early stages after TBI and increase the risk of developing PTE.

Taking all these factors into account, early post-TBI seizure prevention, with varying successes, is commonly used in clinical practice. For this reason, it has been a research topic for decades. There is evidence of the efficacy of antiepileptic drugs (ASM) in the prevention of EPTS, but there is no proven benefit of ASM over LPTS and PTE. In fact, recent Brain Traumatic Foundation Guidelines 20 recommends the use of prophylactic treatment to reduce the incidence of EPTS within 7 days of severe TBI. Historically, phenytoin was the ASM of choice for prophylaxis, but its complications have increased the use of levetiracetam as an alternative.

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