

Carpe Diem – Seize the Day Blog

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Many healthcare facilities have started using long-term electroencephalography monitoring in their intensive care units due to the benefits they can provide. Walt Banoczi, R. EEG/EP T., CNIM, CLTM ES, BE, FASET, Professor Emeritus at Orange Coast College in Costa Mesa, CA published research in The Neurodiagnostic Journal in 2020 looking into these benefits.

Electroencephalography has allowed medical professionals to measure brain functions in real-time and noninvasively. This type of testing can help a range of patients in a host of clinical settings, and it has proven to have advantages when compared with other options. Let's look at some of these benefits.

One of the benefits of EEG in the ICU is the ability to identify new neurologic complications early enough that doctors can intervene and help the patients to have a better outcome.

Additionally, EEGs help doctors to identify new systemic complications. By identifying these new complications while the patient is being monitored, it can allow for faster intervention. Again, the hope is to lead to better outcomes for the patients.

EEG monitoring can also help to access the prognosis for neurologic recovery and survival. Doctors are also using EEG to monitor and regulate therapy. This can help them to better understand the effectiveness of the therapy that is being offered.

The newer options for EEG monitoring are portable, as well, which makes them easier to use. They can be utilized in many different locations, which provides medical practitioners with more options. It may also make it easier on certain patients who are in different settings and locations.

The monitoring can be done continuously, too. This is helpful for a range of patients. Even those who are comatose can receive continuous EEG monitoring to get a better sense of their condition.

The way the EEG monitoring is performed does not create any risks for the patients. The process is non-invasive, and there is no radiation or other risky elements associated with EEG monitoring.

EEG monitoring has been used in a host of settings and for various purposes. It is well-known that it works well to help diagnose epilepsy in outpatient settings. However, as mentioned, it is also being used in hospitals and ICUs to help patients who have undergone cardiac arrest, who suffer from single or multiple organ failure, patients with burns, managing patients after surgery, and more. The use of EEG in ICUs is constantly growing.

There is ample evidence from other studies that point to the benefits of EEG monitoring. In 2018, “Continuous EEG Is Associated with Favorable Hospitalization Outcomes for Critically Ill Patients” (Hill, et al.) reported that the use of continuous EEG monitoring helped to lower mortality rates in hospitals.

EEG is being used to detect nonconvulsive status epilepticus in patients that have unexplained mental deterioration. It is also now being used to assess the sedative/anesthetic state, detect delayed ischemia due to subarachnoid hemorrhage, and assess the outcome of patients with post-resuscitation encephalopathy according to Banoczi.

It is often difficult for medical professionals to properly recognize patterns of coma, seizures, and encephalopathy. By using EEG and looking at the patterns, it becomes easier, and more accurate, for doctors to understand what is happening with their patients.

Other means of diagnosing patients and understanding their condition are not as effective as continuous EEG monitoring is proving to be. More and more hospitals and ICUs are using this tool to better identify a range of conditions including secondary brain injuries in critically ill patients. Those secondary injuries can worsen neurologic outcomes, so discovering them as early as possible and treating them is essential.

Sources:

Walk Banoczi (2020) ICU-CEEG Monitoring, *The Neurodiagnostic Journal*, 60:4, 231-271, DOI: 10.1080/21646821.2020.1824982

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