ASET Position Statement on the Emergent Use of Limited EEG Source Devices

Recent scientific advances have developed new technologies and devices for replacing standard electroencephalography scalp electrodes. The 10-20 system of head measurement is an internationally recognized method of standardizing electrode placement to ensure EEG recording and testing outcomes will be consistent, reproducible and comparable to previous and future testing of the same patient between different facilities. As standard 10-20 head measurement and electrode placement are time consuming and require the availability of a trained technologist to properly prepare the patient for EEG testing, many of these devices were developed for use in emergency and critical care departments as a rapid screening tool and for assessing potential subclinical seizure activity in order to administer timely and effective treatment.

ASET – The Neurodiagnostic Society acknowledges that the use and dissemination of new technologies and devices to replace standard EEG scalp electrodes are inevitable and desirable, especially in areas of workforce shortage because of their impact in emergency situations where a timely EEG assessment is critical for protecting the brain health of patients. As the professional society for Neurodiagnostic Technologists, ASET’s role is to provide guidance on the use of these products to optimize benefits to patients while also minimizing the potential for patient harm from inappropriate use of these technologies. In acute, emergent situations, such as status epilepticus, these devices may provide critical data needed for rapid assessment to support expedited evaluation and treatment. Nonetheless, given the current state of these technologies, restriction to shorter durations is advisable and not to exceed the manufacturer’s indications for use (IFUs). ASET discourages the use of reduced montage EEG (rmEEG)/rapid EEG technologies for prolonged continuous Long-Term Monitoring (LTM) periods beyond the scope needed for a rapid assessment and acute treatment management. Conversely, when working with a patient positive for or under investigation for a highly infectious disease, rapid application EEG products may be used to limit the exposure time of the technologist performing the study.

Therefore, it is the position of ASET that the standard method of using the 10-20 head measurement and electrode placement be utilized in every otherwise healthy adult and pediatric case for epilepsy diagnosis and treatment decisions and in prolonged EEG monitoring in ICU/neurocritical care units for the same patient populations, except in situations where exposure time for the acquiring technologist is of great concern and should be limited. It is important to note that many of these new devices do not include a full EEG array nor video EEG, which are essential for proper epilepsy diagnosis, treatment and monitoring, and/or do not compensate for skull defects, head wounds, etc., often seen in critical care areas. Furthermore, only a qualified Neurodiagnostic Technologist has the proper training to strategize and tailor the test per patient history and care needs, employ activation techniques as appropriate and
troubleshoot to eliminate or monitor artifacts in order to produce a reliable and interpretable diagnostic study.

References:


-- Approved by the ASET Board of Trustees May 27, 2020