Position Statement on the Emergent Use of Limited EEG Source Devices

Recent technological 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 proper assessment, but their use should be limited to temporary in usage, to support rapid assessment and treatment as needed, and we strongly caution usage beyond this scope.

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 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. 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 4,5 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 November 20, 2019