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

The International Federation of Societies for EEG and Clinical Neurophysiology established the Standard International 10-20 System of Electrode Placement in 1958 as a gold standard to ensure consistent head measurement, EEG recording, and testing outcomes. The goal was to facilitate interlaboratory continuity and achieve reproducible and comparable EEGs.[1, 2, 3] Recent scientific advances have developed new technologies and devices for augmenting EEG modalities of study. 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 to administer timely and effective treatment.

ASET – The Neurodiagnostic Society acknowledges that the use and dissemination of new technologies and devices may serve a role in emergency situations where a limited EEG assessment (i.e., non-standard electrode placement, reduced array, etc.) 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.

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) under the discretion of the clinical care expertise. 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 a highly infectious disease or under investigation, rapid application EEG products may be used to limit the exposure time of the technologist performing the study.[4]

Therefore, it is the position of ASET that the standard method of using the International 10-20 System of electrode placement and head measurement be utilized in adult and pediatric populations for diagnosis and treatment decisions in routine and prolonged EEG monitoring (e.g., ambulatory EEG, ICU, neurocritical care, LTM, routine EEG, etc.). It is important to note that many of these new devices may have technical or clinical limitations and do not compensate for skull defects, head wounds, etc., often seen in critical care areas. Furthermore, only a qualified Neurodiagnostic technologist [6,7] 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:

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