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EDITORIAL COMMENTARY

Sedative for Sleep Electroencephalogram Records - A Debate of Ideal *vs.* Practical

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Electroencephalography (EEG) is one of the key tools for unraveling the mystery behind epilepsy and its related syndromes. This modality becomes important in the pediatric age owing to their immaturity in describing the symptomatology, distinguishing between the various seizure mimics, classifying an epilepsy syndrome as benign or progressive type, and deciphering the underlying prognosis [1]. EEG is incomplete without a sleep record. Sleep activation of the epileptiform discharges in EEG is vital to diagnose sleep-related epilepsy and to increase its yield [2].

Obtaining a sleep EEG becomes challenging as children less than 5 y per-se don't cooperate for such a procedure requiring the physical application of the scalp electrodes, especially in those with developmental delay and behavior problems like autism and attention deficit hyperactivity disorder (ADHD) [1].

Ideally, an EEG should be recorded in awake and sleep states with a natural transition. However, in a busy and overcrowded OPD setup with a mismatch between the available resources and the patient load, obtaining a natural sleep is difficult, so drug-induced sleep becomes important. Many drugs have already been evaluated in the past for the same, namely benzodiazepines, barbiturates, antihistamines, *etc*. but have failed to qualify as an ideal sedative owing to their interference with the natural sleep. Recently, researchers have even used Dexmedetomidine for inducing sleep [3].

Despite these multiple options, the most used remain melatonin and triclofos. Both these drugs have the least interference with natural sleep pattern [3]. Melatonin is an endogenous product of the pineal gland that maintains the sleep-wake cycle, and triclofos is a chloral hydrate analog that has a sedative action.

The index study by Kaur et al. vividly describes the effectiveness of melatonin and triclofos in obtaining EEG [4]. It is one of the first studies to calculate the cost-effectiveness ratios (CER) between two drugs. The results obtained are consistent with the previously published results proving the cost-effectiveness of melatonin over triclofos.

However, practical experience suggests that this might not always hold true in busy, large turn-over government/public health facilities in India. The cost-effectiveness analysis (CEA) in the index study by Kaur et al. highlights the superiority of melatonin but this does not take into account the cumulative cost in case of re-visits if the EEG record could not be obtained or was unsuccessful. The need for a second dose and a shorter sleep duration with melatonin consequently may affect its use in settings that lack the ideal conditions to induce sleep. Another unanswered aspect of melatonin use remains its inherent antiepileptic potential [5].

The existing literature considers melatonin comparable to triclofos as a sedative for EEG recording. However, the incidence of adverse effects, though mild, is more with triclofos [5]. Thus, more such RCTs and better-designed studies in practical setups, taking into consideration all the unexplored aspects of these two sedative drugs and the overall cost considerations, are needed to find the ideal drug for sleep EEG records.

Declarations

Conflict of Interest None.

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