

Sleep Macrostructure in Lennox- Gastaut Syndrome: A Polysomnographic Case-Control Study

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Abstract

Lennox-Gastaut syndrome (LGS) is an epileptic encephalopathy defined by a triad of multiple drug-resistant seizure types, a specific EEG pattern showing bursts of slow spike-wave complexes or generalized paroxysmal fast activity, and intellectual disability. The prevalence of LGS is estimated between 1 and 2% of all patients with epilepsy.

The relationship between sleep disturbances and refractory epileptic encephalopathies (EEs) are still scarce. The aim was to assess, by means of nocturnal polysomnography, if children with LGS present with objective alterations in sleep macrostructure.

33 children with LGS (21 males; mean age: 7.9 ± 1.4 years) and 33 healthy controls (22 males; mean age: 8.1 ± 1.1 years) underwent an overnight full polysomnography (PSG). Relative to controls, children with LGS showed a significant reduction in all PSG parameters related to sleep duration time in bed (TIB-min; $p < 0.001$), total sleep time (TST-min; $p < 0.001$), and sleep percentage (SPT-min; $p < 0.001$), as well as significantly higher REM latency (FRL-min $p < 0.001$), rate in stage shifting ($p = 0.005$), and number of awakenings/hour ($p = 0.002$).

Relative to controls, children with EEs also showed significant differences in respiratory parameters (AHI/h, $p < 0.001$; ODI/h, $p < 0.001$; SpO₂%, $p < 0.001$; SpO₂ nadir%, $p < 0.001$) and a higher rate of periodic limb movements with an index per hour > 5 (PLMs%, $p < 0.001$).

Our findings suggest that sleep evaluation could be considered mandatory in children with Lennox-Gastaut syndrome in order to improve the clinical management and the therapeutic strategies.



Biography:

Marco Carotenuto completed his Degree in Medicine and Surgery in 2000 and Specialist degree in Child Adolescent Neuropsychiatry in 2005. In 2008, he completed Doctorate in Behavioural and Learning Disorders Sciences. From 2008 to 2011, he was a Junior Researcher and from 2011 to 2017, he was a Senior Researcher in Child and Adolescent Neuropsychiatry and. In December 2017, he became Associate Professor at Università della Campania Luigi Vanvitelli. He is the Chief of the Clinic of Child Neuropsychiatry and his research and clinical areas of interest have been focused on pediatric sleep disorders, pediatric primary headaches, and pediatric rehabilitation.

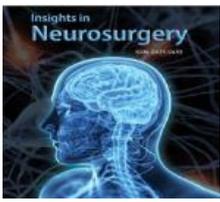
Speaker Publications:

1. Marco Carotenuto; "Cyclic Alternating Pattern (CAP) analysis in children affected by migraine without aura: A preliminary study"; 28th World Congress on Neurology and Therapeutics. 2019.
2. Esposito M, Lanzara V, Carotenuto M ; "Sleep Macrostructure and NREM Sleep Instability Analysis in Pediatric Developmental Coordination Disorder"; Int J Environ Res Public Health. 2019/16(19):3716.
3. Marco Carotenuto; "Plasmatic leptin levels and sleep habits in children affected by autism spectrum disorder medication naive"; 28th International Conference on Neuroscience and Neurochemistry. 2019.
4. Marco Carotenuto, Iliaria Bitetti, Francesco Precenzano et al. "Mild traumatic brain injury affects sleep macrostructure in children: A polysomnographic study"; 20th International Conference on Pediatrics & Primary Care. 2018.

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