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# Sleep Hygiene in Pediatric Patients with Steatotic Liver Disease

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We appreciated to read the article by Ozkan et al. (1) on a cross-sectional study on the prevalence of sleep disturbances in children with gastrointestinal symptoms due to metabolic steatosis-related liver disease (MASLD). The study demonstrated that sleep disturbances are more common in MASLD patients and are associated with gastrointestinal symptoms (1). The study is appealing but has some limitations.

Firstly, the sleep of children with MASLD depends not only on the liver disease but on numerous other influencing factors that were not adequately considered in the analysis (1). Disruptive factors affecting children's sleep quality are listed in Table 1. As long as these interfering factors that affect sleep have not been included in the analysis, the results may remain unreliable.

The second point concerns the use of the Child's Sleep Habits Questionnaire (CSHQ) to assess the sleep quality of the included children (1). The CSHQ has several limitations (2,3). These include limited validation using polysomnography or actigraphy, subjectivity because of its reliance on parental reports, and low internal consistency of the subscales. The CSHQ is not diagnostic on its own, and its structure cannot be consistently replicated

across different cultural contexts or age groups. Polysomnography or actigraphy should have been used for an objective assessment of sleep quality and duration. Only objective measurement methods can reliably determine whether sleep is normal or disturbed.

The third point concerns the lack of brain imaging in the included patients (1). Since sleep disturbances can be caused by central nervous system (CNS) disease, it is important to know whether a CNS disorder was present that could explain the sleep disturbance. CNS disorders that particularly affect sleep include stroke, extrapyramidal disease, traumatic brain injury, central sleep apnea syndrome, and narcolepsy.

The fourth point is that MASLD can be complicated by hepatic encephalopathy (4), which itself can be further complicated by sleep disturbances (5). Therefore, it is important to know how many patients had elevated serum ammonia levels and in how many cerebral MRI findings indicated hepatic encephalopathy.

In summary, sleep disturbances in children with MASLD cannot be attributed solely to steatosis of the liver until all factors influencing sleep have been excluded as alternative explanations.

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**Table 1. Factors that can disrupt children's sleep (6)**

Genetic constitution
Personality type
Stress management strategies
Comorbidities (pain, seizure, anxiety, depression, neuroses, psychosis, bedwetting, attention deficit hyperactivity disorder)
Sleep habits (fixed or variable bedtimes, sleep aids (autosuggestion, reading, TV, relaxing music, airing out the bedroom)
Devices that emit electromagnetic radiation
Stress (school requirements, noise, light, vibrations, drafts, insects, pets, earthquakes, bed quality, snoring of bed neighbours, indoor tobacco smoke levels, indoor and outdoor air pollution, nighttime light pollution, cell phone towers, electromagnetic radiation, relationship problems with parents, siblings, or friends, parental socioeconomic status, local, regional, national, and geopolitical conditions)
Diet
Late last meal or drinking
Stimulating medications or drinks

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