Musicians and Dystonia: Is Sleep Part of the Problem?

To the editor—We would like to congratulate Lee and Altenmüller for their recent study showing important findings about the characterization of a task-specific dystonia in a young professional percussionist. The authors presented in an elegant way the EMG investigation and treatment approaches and the possible differential diagnoses, raising an important question about the need for physicians’ awareness of this condition when considering musicians’ health.

We would like to add a new point of view in order to contribute to this discussion and provide critical thinking for a multidisciplinary approach to this type of dystonia, which may affect many individuals and result in severe compromise of musical technical performance. One factor that could also be potentially associated with the percussion-related dystonia is sleep. Indeed, there is some evidence that dystonia is related to a reduction of sleep efficiency and REM sleep stage as well as increased arousals, leading to fragmented sleep. Sleep quality is essential for body homeostasis, pain sensitivity, and motor control, presenting a bidirectional relationship with such parameters. In fact, sleep disorders may be a primary feature of dystonia independent of its severity regarding motor control. On the other hand, Walker and colleagues have demonstrated that motor patterns and skillful actions required for movement-based sports, such as musical instrument, depend on sleep. In this sense, more studies are necessary to further characterize the sleep pattern of this particular population and to investigate its relationship with muscle dystonia.

Another important point is the continuous exposure to noise, which may be able by itself to cause behavioral changes, alter sleep architecture, and lead consequently to excessive daytime sleepiness. It is known that noise can affect health parameters, mainly if reaching frequencies >55 dB, due in part to the development of sleep disturbances such as delayed sleep onset, early awakenings, and reduced slow-wave sleep and REM sleep, which may also trigger dystonia. In addition, chronic exposure to noise may contribute to the development of tinnitus, which in turn is a risk factor for sleep disturbance and enhances EEG signal strength in the δ, α, and lower γ-bands (30–40 Hz) during sleep. In the case reported by Lee and Altenmüller, the patient used to play around 1 to 2 hrs/day, and possibly with exposure to noise frequencies >135 dB, and thus should be screened for audiometry.

Considering the importance of sleep for muscle health, it is plausible to hypothesize that the patient described by Lee and Altenmuller could also present alterations of the sleep pattern in comparison to other types of dystonia, as in this case musicians are exposed to an additional risk factor, noise. Whether this chronic exposure to noise in addition to the repeated movements intrinsic to the profession are also modulated by sleep and may result in worse motor manifestations of dystonia is unknown. This issue warrants further study for better management of the disease and quality of life of the patients.

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In reply—We thank Akamine and co-authors for their interesting hint, linking both sleep quality and exposure to noise to musician’s dystonia. It is correct that there is a subgroup of musicians with dystonia who have a personality profile linked to stressful behaviors, anxiety, dysfunctional thoughts, and lack of stress-coping strategies. These musicians may also have sleep disorders. Unfortunately, although we regularly ask about sleep-disorders when we see patients, we never explicitly asked this questions in our epidemiological studies and did not include it in our questionnaires. We will do this in future studies. In the case of the Heavy-Metal Musician described in our paper, we reviewed his patient file and found no history of sleep disorders or unusual lack of sleep.

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