

Researchers find variations in sleep patterns in patients with cluster headaches

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Patients with cluster headache suffer from various sleep problems, such

as insomnia, which also occur in periods when the patient is symptom-free and should be considered during treatment. This has been shown by researchers at Karolinska Institutet in a study recently published in *The Journal of Headache and Pain*.

The researchers have recorded sleep with two complementary methods (actigraphy and diaries). Both methods show changes in [sleep patterns](#) and sleep quality in patients with cluster headache compared to control subjects that are consistent with the symptoms of insomnia.

"Patients have increased sleep latency, and stay longer in bed, but sleep the same amount of time as the control subjects," explains Andrea Carmine Belin, researcher at the Department of Neuroscience, who also runs the Center for Cluster Headache at Karolinska Institutet.

"Patients also estimated that they had difficulty falling asleep, slept worse, and felt less rested compared to control subjects. Cluster headache is a disorder that appears in phases; there are active phases when patients experience daily headache attacks, which are interspersed with remission phases when the patients are headache free. We were able to observe that [sleep problems](#) were more pronounced in patients with the more severe chronic form of cluster headache (having no remission periods) and in patients in active phase, but that they remain in remission," continues Belin.

What's new and why are results important?

"This is the largest study of its kind and confirms findings from previous studies conducted on patients with cluster headache with actigraphy and polysomnography. For the first time, we have been able to show that sleep problems also occur in patients in remission (symptom-free) and that the problems cannot therefore be explained by the occurrence of nocturnal headache attacks," says Caroline Ran, co-author of the study

and researcher at the Department of Neuroscience.

These findings indicate that sleep problems in patients may have an underlying biological link to the pathophysiological mechanisms that cause cluster headache and thus is not a result of waking up from headache pain. Even small sleep disturbances observed in the study can have a major impact on quality of life.

"Insufficient sleep has been linked to ill health and pain; therefore it is of great importance to investigate whether treatment of sleep problems can improve patients' well-being."

"We recruited patients with cluster headache from our biobank for cluster [headache](#) and healthy control subjects through a telephone interview. The study participants then had an actigraphic watch sent to them by mail to carry out the sleep measurements at home," says Belin.

During the two weeks of sleep measurements, participants also filled in an electronic sleep diary each day, with information about sleep times and how sleep was perceived. After [data collection](#), the device was sent back and sleep data was exported and analyzed. Sleep was compared between patients and control subjects, between chronic and episodic patients and between active phase and remission, other parameters included in the analysis were age, gender, [social jet lag](#) and the occurrence of nocturnal attacks.

"The next step is to follow up the study to see if patients can be helped by different types of sleep therapy with, for example, melatonin, which is already used to treat patients with [cluster headache](#), but also with [behavioral therapy](#) to relieve feelings of stress and anxiety about sleep. It would also be interesting to expand on this study by studying sleep in a sleep lab and to measure sleep and stress hormones in patients with cluster headaches," says Ran.

More information: Caroline Ran et al, Patients with cluster headache show signs of insomnia and sleep related stress: results from an actigraphy and self-assessed sleep study, *The Journal of Headache and Pain* (2023). DOI: [10.1186/s10194-023-01650-w](https://doi.org/10.1186/s10194-023-01650-w)

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