

Respiratory rhythms can help predict insomnia

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The breathing and heart rates and cortisol levels of women with metastatic breast cancer can be used to predict if they'll suffer from chronic insomnia and sleep disruptions, a common complaint from patients who want to maintain their quality of life, according to a study by scientists at the University of Rochester Medical Center.

This report, published in the *Journal of Clinical Sleep Medicine*, is the first to identify the body's parasympathetic nervous system, a branch of the autonomic nervous system that controls breathing and heart rates and the body's response to stress, as a contributor to poor sleep, which is a persistent problem for women with breast cancer, according to lead author Oxana Palesh, Ph.D., research assistant professor at Rochester's James P. Wilmot Cancer Center.

"We were able to identify the role that the parasympathetic nervous system plays in insomnia. It's reasonable to suggest that simple breathing exercises may help more than we realize with insomnia," Palesh said. She is a member of the University of Rochester Cancer Center Community Clinical Oncology Research Base, which specializes in cancer control studies.

She suggests regulating deep diaphragmatic breathing through yoga, meditation and other techniques may help thwart insomnia and sleep disruptions, which are two to three times as common in cancer patients compared to general population. Scientists don't know why people with cancer experience greater sleep problems and how to prevent it. Many

doctors prescribe people with cancer various sleep aides or hypnotics.

Palesh led a study of 99 women with metastatic breast cancer or recurrent disease over 45 living in San Francisco. Among the women, 39 took antidepressants and 19 used medications to treat their insomnia

Participants collected saliva for cortisol measurement for two days, completed questionnaires and wore actigraphs to monitor sleep and awake cycles for three days. They also participated in Trier Social Stress Tasks, a standardized social and cognitive stress test, after their cortisol baseline collections.

Scientists measured participants' heart rate during a stress task and found that lowered heart rate variability was associated with efficiency of their sleep, how long after sleeping that they awoke, how long they were awake and the average number of times they woke in the night.

Results showed that most women spent about eight hours in bed at night, but had on average 15 wake episodes in the night with each episode lasting about 5 minutes, for a total of 71 minutes

Insomnia and sleep problems are tied to fatigue, mood disorders and sometimes psychiatric illness, and can reduce quality of life for people facing the disease.

In healthy people, cortisol levels peak during the morning and typically level out during the end of the day. However in more than a third of the women with metastatic breast cancer, circadian rhythms are disrupted and cortisol peak multiple times or rise during the end of the day. In this study, Palesh found that Cortisol disruption was also associated with waking up at night.

In studies of healthy people, evidence shows people with insomnia

typically have an elevated response to stress, which contributes to the problem.

Source: University of Rochester Medical Center

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