Higher blood pressure at night than in daytime may increase Alzheimer's disease risk

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Higher blood pressure at night than in daytime may be a risk factor for Alzheimer's disease in older men, according to a new study from researchers at Uppsala University, now published in the journal *Hypertension*.

Dementia is an umbrella term used to describe a category of symptoms marked by behavioural changes and gradually declining cognitive and social abilities. Numerous factors, including hypertension (high blood pressure), affect the risk of developing these symptoms.

Under healthy conditions, blood pressure (BP) varies over 24 hours, with lowest values reached at night. Doctors call this nocturnal blood pressure fall "dipping." However, in some people, this BP pattern is reversed: Their nocturnal BP is higher than in daytime. This blood pressure profile is known as reverse dipping.

"The night is a critical period for brain health. For example, in animals, it has previously been shown that the brain clears out waste products during sleep, and that this clearance is compromised by abnormal blood pressure patterns. Since the night also represents a critical time window for human brain health, we examined whether overly high blood pressure at night, as seen in reverse dipping, is associated with a higher dementia risk in older men," says Christian Benedict, Associate Professor at Uppsala University's Department of Neuroscience, and senior author of the study.

To test this hypothesis, the researchers used observational data from 1,000 older Swedish men, who were followed for a maximum of 24 years. The men were in their early seventies at the beginning of the study

"The risk of getting a dementia diagnosis was 1.64 times higher among men with reverse dipping compared to those with normal dipping. Reverse dipping mainly increased the risk of Alzheimer's disease, the most common form of dementia," says Xiao Tan, postdoctoral fellow from the same department and first author of this research.

"Our cohort consisted only of older men. Thus, our results need to be replicated in older women," concludes Benedict.

According to the researchers, an interesting next step would be to investigate whether the intake of antihypertensive (BP-lowering) drugs at night can reduce older men's risk of developing Alzheimer's disease.

More information: Xiao Tan et al. Reverse dipping of systolic blood pressure is associated with increased dementia risk in older men: A longitudinal study over 24 years, *Hypertension*, 2021.

Provided by Uppsala University

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