Website address:
https://www.gesundheitsindustrie-bw.de/en/article/press-release/blood-marker-alzheimers-may-also-be-useful-heart-and-kidney-diseases

Blood Marker for Alzheimer's May also Be Useful in Heart and Kidney Diseases

A certain blood protein regarded as an early indicator of Alzheimer's disease also appears to play a role in other disorders. Researchers at DZNE and the Hertie Institute for Clinical Brain Research (HIH) at the University of Tübingen have found that elevated levels of phosphorylated tau protein (pTau) also occur in two lesser-known conditions that primarily affect the heart and kidneys. These findings open up new perspectives for improved diagnostics and were published this week in the journal "Nature Medicine". They are based on data from 280 older individuals from Germany, Italy, and the Netherlands.

The diseases investigated were "transthyretin amyloidosis" and "immunoglobulin light-chain amyloidosis" – the two most common forms of "systemic amyloidosis". Similar to Alzheimer's disease, these conditions are characterized by the accumulation of misfolded proteins, known as amyloids. However, unlike Alzheimer's, the deposits do not form in the brain but primarily in the heart and kidneys and they consist of different proteins. Despite these differences, the Tübingen researchers observed a similar response in the blood: levels of pTau were elevated in affected individuals.

A new approach for diagnosis

"Our results underscore that high pTau levels in blood are not specific to Alzheimer's, but can also occur in other amyloid diseases," says Mathias Jucker, professor and scientist at DZNE and HIH. "Our results could open up new possibilities for diagnosis of systemic amyloidosis. The blood marker pTau can be measured relatively easy. It may facilitate earlier detection and help confirm or rule out suspected cases."

Relevance for Alzheimer's and polyneuropathy

The findings underline the importance of comprehensive diagnostic assessment of Alzheimer´s disease. "Blood levels of pTau are not a specific marker and further data should be considered when diagnosing Alzheimer's disease or assessing its progression. Contrary to some views, pTau should not serve as a standalone diagnostic criterion. This is particularly important in the absence of cognitive deficits when Alzheimer's disease is at an early stage."

The findings also have implications for diagnosing polyneuropathy (PNP), a condition that often causes tingling and numbness in the hands and feet. Systemic amyloidosis can be an underlying cause, but there are others. "Our results suggest that pTau could help distinguish amyloidosis-related PNP from forms of PNP with other causes," says Jucker.

Possibly, a stress signal

Why are pTau levels elevated at all? Jucker suspects that cells release pTau as a stress response to amyloid deposits – a reaction that may occur in many organs, not just the brain. "In some cases, this stress response can be beneficial. In hibernating animals, temporary increases in pTau have been described as a protective mechanism," he says. "Overall, our findings suggest that elevated pTau could be a fairly common response of the body to certain conditions."

Publication:
Blood phosphorylated Tau elevation in immunoglobulin light chain and transthyretin amyloidosis., Stephan A. Kaeser, Stephanie A. Schultz, Anna Hofmann et al., Nature Medicine (2026), DOI: 10.1038/s41591-026-04272-2

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Further information

- German Center for Neurodegenerative Diseases
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