

Biological fingerprints improve diagnosis of dementia

October 4 2011

Differentiating between the various forms of dementia is crucial for initiating appropriate treatment. Researchers at the Sahlgrenska Academy have discovered that the underlying diseases leave different "fingerprints" in the cerebrospinal fluid, paving the way for more reliable diagnoses.

The two most common forms of dementia are Alzheimer's disease and [vascular dementia](#). The latter is caused by reduced circulation in the small blood vessels of the brain, which can be picked up in [brain scans](#) as small infarcts -- strokes -- or widespread changes in the white matter. The problem is that this small vessel disease presents very similarly to Alzheimer's disease, making it difficult in practice to distinguish between the two.

Biochemical fingerprints in CSF

Because the different diseases are treated differently, it is important to be able to make the [correct diagnosis](#). Researcher Maria Bjerke from the Sahlgrenska Academy at the University of Gothenburg has shown in her thesis that the different forms of dementia are detectable as [biochemical changes](#) in the [cerebrospinal fluid](#) (CSF) long before any clinical symptoms emerge. The results are significant for how the most common age-related cognitive disorders are diagnosed.

Step towards better treatment

"As the CSF is in direct contact with the brain, its [molecular composition](#) can be expected to reflect the brain's metabolism," Bjerke explains. "Examining the molecular fingerprints in the CSF enables us to determine whether or not there is an ongoing pathological process".

"Mapping the biochemical differences between the various forms of dementia will help us to understand what caused the disease, which in turn will determine how the disease should be treated."

The possibility of differentiating between patients with mild cognitive disorders due to small vessel disease and patients with Alzheimer's needs to be given much greater attention, Bjerke believes, not least with a view to designing and implementing detailed treatment studies.

More information: The thesis Cerebrospinal fluid biomarkers for differentiating between Alzheimer's disease and vascular dementia was successfully defended on 9 June 2011.

Provided by University of Gothenburg

Citation: Biological fingerprints improve diagnosis of dementia (2011, October 4) retrieved 26 April 2024 from <https://medicalxpress.com/news/2011-10-biological-fingerprints-diagnosis-dementia.html>

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