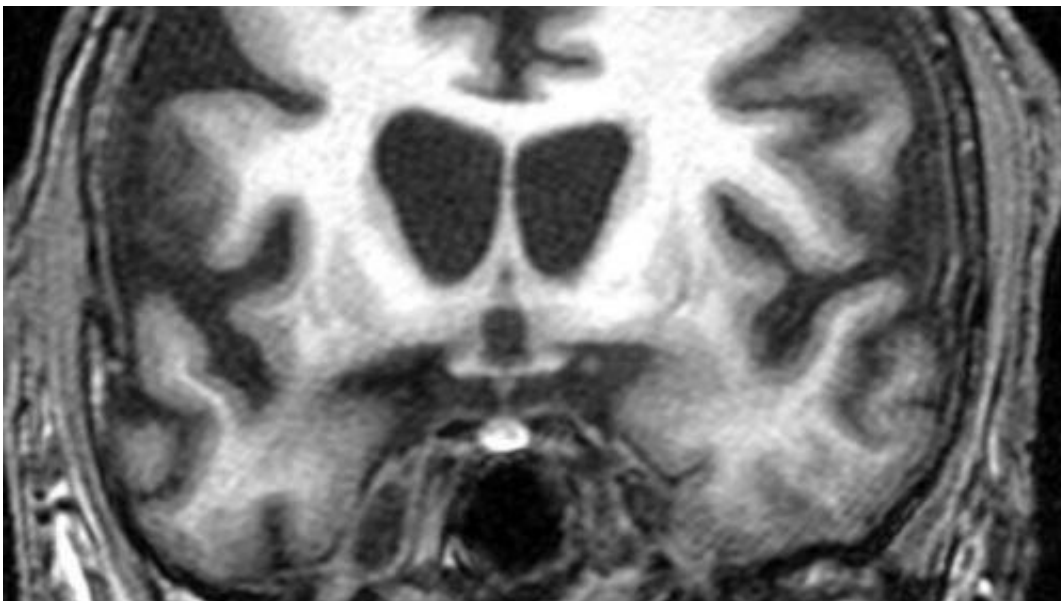


Distinct clinical profiles of Huntington's disease can be associated with two specific neural signature

June 25 2019



Cognitive-motor and psychiatric profiles of Huntington's disease show a different pattern of brain alterations. Credit: IDIBELL

Researchers from the Cognition and Brain plasticity group of Bellvitge Biomedical Research Institute (IDIBELL) and the Institute of Neurosciences of the University of Barcelona (UBNeuro), with the collaboration of Radboud University in the Netherlands, have identified two specific patterns of cerebral disorders underlying two clinical profiles of Huntington's disease. The study, published in *Neuroimage*:

Clinical, can help develop specific biomarkers and personalized treatments for each profile of this rare disease.

The research, led by doctors Estela Càmara and Ruth de Diego, with predoctoral researcher Clara García Gorro as first author, widens the current knowledge about Huntington's disease. This neurodegenerative genetic disease is characterized by associated motor, cognitive and psychiatric deficits, but there is "large symptomatic heterogeneity among patients, so we decided to investigate the neurobiological basis of these differences to see if we could link it to the clinical profiles," Dr. de Diego, ICREA researcher, explains.

For the study, researchers used a multimodal fusion analysis technique that combines different types of magnetic resonance imaging modalities. "This type of analysis allows us to integrate the information of the different modalities and thus study the brain and the pattern of neurodegeneration in a more global way, making the identification of more subtle cerebral alterations possible," Dr. Càmara explains.

The analysis of the relationship between the symptoms of the disease and the measures of the structural alterations of the white and gray matter allowed the researchers to establish that the cognitive and motor symptoms shared a common neurobiological basis while the psychiatric domain had a differentiated neural signature.

"Cognitive and motor symptoms were associated together with a pattern of reduction in [gray matter](#), cortical thickness and the integrity of the white substance in [brain regions](#) responsible for the execution of movements and the processing of different cognitive functions, such as memory, planning or visual-spatial processing. Depressive symptoms, on the other hand, were associated with a very different pattern, characterized by a lower thickness in the cerebral cortex in regions responsible for the emotional processing typically associated with

psychiatric alterations," Dr. García Gorro adds.

These results provide a new vision of a disease traditionally considered as a uniform entity and promote new lines of research that take into account these individual qualitative differences. "Our results are especially relevant in the context of clinical trials, as they could be used to define specific biomarkers for each symptomatological profile, even before clinical signs appear," says Dr. Càmara, adding that "we are opening a door to personalized medicine in Huntington's [disease](#), as research increases the likelihood of finding individualized treatments aimed at specific cognitive, motor, and psychiatric disorders."

More information: Clara Garcia-Gorro et al, Specific patterns of brain alterations underlie distinct clinical profiles in Huntington's disease, *NeuroImage: Clinical* (2019). [DOI: 10.1016/j.nicl.2019.101900](https://doi.org/10.1016/j.nicl.2019.101900)

Provided by IDIBELL-Bellvitge Biomedical Research Institute

Citation: Distinct clinical profiles of Huntington's disease can be associated with two specific neural signature (2019, June 25) retrieved 3 May 2024 from <https://medicalxpress.com/news/2019-06-distinct-clinical-profiles-huntington-disease.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--