Alzheimer's, when will the diagnosis be made in a drop of blood?

Not before five years. But the road is clear. Several studies around the world are evaluating the accuracy of tests capable of predicting the onset of the disease starting from proteins present in plasma

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A process that lasts decades, silently. This is what leads to the development of Alzheimer's disease which, when it shows signs of itself, with the characteristic symptoms, is now too advanced to be stopped. At least with the tools we have available today. This is why identifying the indicators of the future onset of neuronal degeneration is key to the development of effective therapies. Researchers who are experimenting with drugs with mixed success have also noticed this: the molecules are not effective precisely because they are administered to patients who are too far along with the disease. However, they could make a difference if given to people who are not yet showing symptoms. How to identify them?

The results of a study involving 500 patients and which put to the test a test developed at the University of Washington's medical faculty have just been released on the pages of Neurology. The indicators looked for in plasma are the Aβ42 and Aβ40 proteins, the level of which is linked to the presence of accumulations of the amyloid protein in the brain. By combining the levels of amyloid circulating in the blood with the other main risk factor for Alzheimer's – the presence of the mutated Apoe4 gene – the test's accuracy is up to 88% compared to imaging tests and 93% compared to CSF sampling, the two methods used to establish the diagnosis. “Growing technological progress allows us to analyze, particularly in plasma, numerous proteins related to neurodegenerative diseases, including Alzheimer's,” explains Alessandro Padovani, director of the Chair of Neurology at the University of Brescia. “The data published so far by several researchers, including Italian groups, indicate that with a blood test it is possible to identify pathological changes that we know are related to Alzheimer's, relating to amyloid and tau proteins and proteins associated with the neuroinflammatory reaction.”.

The newly published study demonstrates that the two markers chosen identify people at risk early. But in recent years other markers have been discovered, to the point that today it is considered likely to be able to distinguish different forms

of the disease which would respond to different indicators. “The path marked out is that of personalisation: one day what happens today with tumors will happen for dementia too. We will be able to understand for each patient what type of disease they have, against which we will act in a targeted manner", underlines Padovani.

In the meantime, however, we must remain with our feet on the ground. Blood tests to understand the risk profile of developing dementia are not yet validated, the data available is too little and not solid enough. There are several centres, including Italian ones, that are studying the technologies, but the validation process is long. “We must be cautious because we cannot afford to use tests that give inaccurate answers. However, within five years I think we will be able to have effective tools, on the basis of which - if there are any - we will also be able to think about preventive therapies", concludes Padovani.