

Early warning for schizophrenia found in spinal fluid

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Schizophrenic patients have higher levels of glucose in their brain and spinal fluid than healthy individuals, according to the new study

The study, published today in PLoS Medicine, shows that newly diagnosed schizophrenic patients have higher levels of glucose in their brain and spinal fluid than healthy individuals. Scientists hope these findings could be used for early diagnosis and treatment of the condition and could help them to develop more effective drugs.

There is currently no diagnostic test for schizophrenia, which affects around one in every 100 people. Diagnosis of the condition through

clinical interviews and patient observations can be difficult and time-consuming, due to its wide range of symptoms and its similarity to other mental disorders.

The team from Imperial College London, the University of Cambridge and the University of Cologne analysed cerebrospinal fluid (CSF) from 152 volunteers. 54 of these had recently been diagnosed with schizophrenia, 70 were healthy volunteers with no schizophrenia, while 28 were receiving some form of treatment.

They found there were alterations in the way the body metabolised glucose in the 54 volunteers who had recently been diagnosed with schizophrenia but had not received any treatment, when compared with the group without schizophrenia.

In the group receiving one type of drug therapy, there were marked improvements in the glucose levels when they were treated after their first psychotic episode, underlining the importance of early detection and treatment.

Glucose is the main energy source for our bodies but evidence from this and other studies suggests that those with schizophrenia use a different energy source in their brains, called lactate. This means that glucose levels remain high in the brain because the glucose is not being used effectively.

Dr Tsz Tsang , one of the researchers on the study from Imperial College London, said: "We were surprised to find such apparent chemical imbalances in the spinal fluids of people with a psychiatric disorder. The research highlights the potential of metabolic profiling as a powerful diagnostic tool for neurological disorders.

"Our preliminary findings here provide further insight into the

pathological mechanisms that are occurring. Determining the presence of these 'biomarkers' in fluids that are more easily accessible, such as blood or urine, may provide a more convenient platform for diagnosing neuropsychiatric conditions in the future," said Dr Tsang.

Dr Tsang's colleague, Dr Elaine Holmes , added: "This research could be of huge importance in how we deal with schizophrenia. It shows we can now spot the changes which occur before it becomes a major problem."

Source: Imperial College London

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