

Press release

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New discoveries about nitric oxide can provide drugs for schizophrenia

Problems with memory and social function in patients with schizophrenia may result from an imbalance in the brain's nitric oxide system. A dissertation from the Sahlgrenska Academy shows that rats with characteristics of schizophrenia regain normal brain function if they receive drugs that reduce the production of nitric oxide in the brain.

Schizophrenia is a serious and common disease that can cause hallucinations, delusions and apathy. Problems with memory, social cognition and other intellectual abilities are also common.

"Schizophrenic patients can be treated with anti-psychotic drugs, but the treatment does not help cognitive disturbances or impaired social function to any appreciable degree. We believe that this is due to an imbalance in the brain's nitric oxide system, and if this is the case, we may be able to develop a completely new type of treatment," says pharmacologist Caroline Wass.

In these studies, rats and mice were given a drug called phencyclidine. This substance causes a schizophrenia-like state in humans.

"Rats and mice don't become schizophrenic, but the drug has a similar effect on thought processes in rodents to the effect it has in humans," says Caroline Wass.

The animals' learning capacity, memory and social interaction were measured using several different behaviour models. When the animals were treated with a substance that blocks brain nitric oxide production, they became resistant to the schizophrenia-like effects of phencyclidine.

The research team will shortly initiate a patient study in order to find out whether blocking brain nitric oxide production can alleviate cognitive disturbances in patients with schizophrenia.

"In the future it is possible that drugs that affect the regulation of nitric oxide in the brain can be used to supplement currently existing anti-psychotic agents. The hope is that nitric oxide inhibiting drugs will alleviate the cognitive disturbances that also lie behind the impairments of social function, significantly improving the chances of a good life for schizophrenic patients," says Caroline Wass.

SCHIZOPHRENIA FACTS

Schizophrenia is a psychiatric illness that affects 1% of the population. There is no cure, but the psychotic symptoms can be treated with psychotropic drugs. The illness often first appears in the twenties. It is usually chronic, and most sufferers never return to work or to full-time education.

Dissertation for research doctorate in medicine from the Sahlgrenska Academy, Institute of Neuroscience and Physiology

Title of dissertation: Cognition and social behaviour in schizophrenia:
An animal model investigating the potential role of nitric oxide

The dissertation will be publically defended on Wednesday 14th December at 09.00, Room 2118, Arvid Wallgrens Backe, hus 2, Göteborg.

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