

Long-term methadone treatment can affect the brain

March 23 2011

Methadone has been used to treat heroin addicts for nearly 50 years. Yet we have surprisingly incomplete knowledge about possible harmful effects from prolonged use. New research from the Norwegian Institute of Public Health shows that methadone affects the brain and impairs the attention of experimental animals.

In general, [opioids](#) such as heroin and [morphine](#) are known to weaken intellectual functions such as learning, memory and attention.

"It is therefore tempting to assume that methadone has similar effects," says researcher Jannike M. Andersen at the NIPH's Division of Forensic Toxicology and [Drug Abuse](#).

For ethical reasons, methadone cannot be tested in long-term studies of healthy volunteers. It is also difficult to draw reliable conclusions from studies with methadone patients, because these studies often encounter methodological problems. Therefore, animals were used in the research.

New study of methadone

In a new study, Andersen and colleagues treated rats daily with methadone for three weeks and studied the rats' attention. The researchers measured how long the rats examined a new object introduced into their cage. The results show that the treatment clearly reduced the attention of the animals. This was true both when the [rats](#)

had methadone in the body and, more importantly - a day after the last treatment, when the methadone had been excreted.

"The fact that the attention is impaired even after the drug was no longer present in the body suggests that methadone causes changes in [brain cells](#). We do not yet know exactly what the changes are and how long-lasting they will be" says Andersen.

Is the human brain affected too?

-Does this unwanted effect have significance for people who are treated with methadone over many years?

"A positive treatment outcome depends on the patient functioning well - both socially and intellectually. If methadone treatment also impairs intellectual functions in humans, it could have a negative effect on the treatment result.

"We must now follow up the results from the animal studies to see if attention problems persist and to learn more about the biological mechanisms involved. Only then can we say anything more about the translation value of our findings for humans," says Andersen.

Methadone is a synthetic opioid that has been used in the treatment of heroin addicts worldwide since the mid-1960s. In Norway, [methadone](#) treatment was introduced in the 1990s.

More information: Jannike M. Andersen, Christine F. Olausson, Åse Ripel and Jørg Mørland. Long-term methadone treatment impairs novelty preference in rats both when present and absent in brain tissue. *Pharmacology Biochemistry and Behavior*, 2011, online publication.

Provided by Norwegian Institute of Public Health

Citation: Long-term methadone treatment can affect the brain (2011, March 23) retrieved 25 April 2024 from

<https://medicalxpress.com/news/2011-03-long-term-methadone-treatment-affect-brain.html>

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.