Alcohol drinking cut in half with diabetes medication

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The medication semaglutide, which is currently used in the treatment of type 2 diabetes and obesity, might also be an effective medication for alcohol dependence. In a study from the University of Gothenburg, the drug reduced alcohol relapse drinking and alcohol intake in rats by more

than half. The results of the study are published in the scientific journal *eBioMedicine*.

Semaglutide is sold under brand names such as Ozempic. Since this medication has been approved for the treatment of obesity, demand has increased, which has resulted in difficulties in procuring the drug in recent times. There is anecdotal evidence of patients with obesity or diabetes saying that their craving for alcohol has lessened since they started taking the drug.

Today, individuals with alcohol dependence are treated with a combination of various psychosocial methods and medications. Four approved medications are available. Since alcohol dependence is a disease with many causes, the efficacy of these medications varies, and so it is important to develop additional treatment medications.

Reduced relapses

Semaglutide is a long-acting substance that patients only need to take once a week. This is the first medication to act on the GLP-1 receptor that can be taken in tablet form.

In the study, alcohol-dependent rats were treated with semaglutide, which significantly reduced their alcohol consumption and even reduced the drinking of alcohol in conjunction with relapses. Relapses comprise a major problem for individuals with alcohol dependence, as an individual who has abstained from alcohol for a period relapses and drinks more than before the withdrawal.

In the study, the treated rats cut their alcohol intake in half compared to animals that did not receive treatment. One interesting finding in the study was that semaglutide reduced alcohol intake equally in both male and female rats.

Animals and humans

The study reports a strikingly good effect, although clinical studies will be required before the medication can be used for alcohol dependence, and such studies take time. Moving forward, the medication may be of most benefit to patients suffering from both overweight and alcohol dependence. According to the researchers it is likely that these results will carry over to humans, as results from other studies on alcohol dependency medications made with the same research model have shown similar effect in humans as in rats.

"There are, of course, differences in conducting studies on animals and humans, and these must always be taken into account. However, in this case, there is a previous study on humans in which an older version of the diabetes medications that act on GLP-1 was found to reduce alcohol intake in overweight individuals with alcohol dependence," says Elisabet Jerlhag, professor of pharmacology at Sahlgrenska Academy at the University of Gothenburg.

Mechanisms in the brain

The current study also examined why the medication reduces alcohol drinking. The results indicate that reduced alcohol-induced reward could be a contributing factor. In the study, semaglutide affected the brain's reward system in mice, to be more exact the nucleus accumbens area of the brain, which is part of the limbic system.

"Alcohol activates the brain's reward system, resulting in the release of dopamine, something that is seen in both humans and animals. This process is blocked by the medication in mice, and with our interpretation, this could cause a reduction in the alcohol-induced reward," says Cajsa Aranäs, doctoral student at Sahlgrenska Academy at

the University of Gothenburg, who is responsible for much of the work behind the study presented here.

More information: Semaglutide Reduces Alcohol Intake and Relapse-like Drinking in Male and Female Rats, *eBioMedicine* (2023). DOI: 10.1016/j.ebiom.2023.104642. www.thelancet.com/journals/ebi … (23)00207-4/fulltext

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