KETAMINE HELPS HEAVY DRINKERS CUT DOWN

Approximately 88,000 people die from alcohol-related causes each year in the United States.

According to recent estimates from the National Institutes of Health (NIH), more than 26% of adults aged 18 years and above are likely to have engaged in binge drinking in the past month, with 6.7% engaging in heavy alcohol use.

Overall, more than 14 million adults are living with alcohol use disorder in the U.S., and only a small percentage of them are getting treatment.

There are currently only three approved medications that can help treat alcohol use disorder, and none of them can cure the condition.

Now, a small experimental study of 90 people suggests that ketamine holds promise as a better, more effective treatment for harmful drinking behavior.

Ravi Das, from the clinical psychopharmacology unit at University College London (UCL) in the United Kingdom, is the lead author of the *Nature Communications* paper that details the findings.

Drinking and the brain's reward system

Das and colleagues started from the neuroscientific framework that explains addiction in terms of reward-seeking behavior.

In this explanatory framework, addictive drugs undermine the normal, reward-centered learning processes.

Addictive drugs rely on learned associations between drug-related cues — such as the smell or sight of a cigarette or a glass of beer — and the reward that is the drug.

"Learning is at the heart of why people become addicted to drugs or alcohol," explains Das. "Essentially, the drug hijacks the brain's inbuilt reward-learning system so that you end up associating environmental 'triggers' with the drug. These produce an exaggerated desire to take the drug."

"Unfortunately, once these reward memories are established, it's very difficult to relearn more healthy associations, but it's vital in order to prevent relapse," Das says.

Experimenting with ketamine and memories

In the new experiment, 90 heavy drinkers received a glass of beer, which they could only drink as a reward after completing a task. The researchers asked the participants to rate their urge to drink and their anticipated pleasure.

The aim of this process was to make the participants retrieve the reward memories that they associated with beer drinking. The participants were heavy beer drinkers who regularly drank 30 pints of beer a week, on average, which is five times the recommended limit in the U.K.

Removing the highly anticipated reward is key for undermining retrieved reward memories, so the researchers allowed the participants to drink the beer on the first day, but they unexpectedly took it away on the second day.

Under these circumstances, the brain would usually try to restabilize the memory, explain the researchers. However, ketamine stops this restoring process by blocking a brain receptor that is key for reorganizing and reconsolidating memories — the N-Methyl D-Aspartate Receptor (NMDAR).

Das and team gave a third of the participants a ketamine shot on the second day, after taking the beer away from them.

Another group received a placebo, and the last group received ketamine but without having undergone the initial memory retrieval process.

Ketamine is a 'simple, accessible approach'

At a 10-day follow-up, the experiment revealed that the people who received ketamine and underwent memory retrieval craved alcohol significantly less and drank a lot less than other study participants. They also reduced their weekly number of drinking days.

Experiments using a small sample of beer revealed that these participants were less inclined to drink it, enjoyed it less, and were less likely to continue drinking than the participants in the other two groups.

The effects lasted across 9 months. "We found that heavy drinkers experienced a long-term improvement after a very quick and simple experimental treatment," reports the study's lead author.

"This is the first demonstration of a very simple, accessible approach, so we hope that with more research into optimizing the method, this could be turned into a helpful treatment for excessive drinking, or, potentially, for other drug addictions."

Ravi Das

However, the authors emphasize that the research is experimental and not a clinical trial. The study's senior author, Prof. Sunjeev Kamboj, also from UCL's clinical psychopharmacology unit, comments on the various uses of ketamine and the significance of the study.

"Ketamine is a safe, common drug that is being explored for multiple psychiatric uses, including depression, while other researchers are also exploring other ways it could help with problem drinking," Kamboj says.

Indeed, *Medical News Today* recently reported on research showing that ketamine can successfully relieve depression in a clinical setting.

"An advantage to our study," continues Prof. Kamboj, "alongside the pronounced, long-term effect on drinking, is that it's based on a strong understanding of how the drug is working in the brain to achieve its effect."

Ketamine Infusions of Georgia
Ketamine Infusion Therapy