

Addiction treatment proves successful in animal weight loss study

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Vigabatrin, a medication proposed as a potential treatment for drug addiction by scientists at the U.S. Department of Energy's Brookhaven National Laboratory, also leads to rapid weight loss and reduced food intake according to a new animal study from the same research group. The study will be published online August 20, 2008, by the journal *Synapse*. Vigabatrin is currently undergoing U.S. Food and Drug Administration (FDA)-approved Phase II clinical trials against cocaine and methamphetamine addiction across the U.S.

In the current study, animals genetically bred to be obese experienced a loss of up to 19 percent of their total weight while non-obese animals lost 12 to 20 percent following short-term vigabatrin administration.

"Our results appear to demonstrate that vigabatrin induced satiety in these animals," said Amy DeMarco, who led the study, working in the laboratory of Brookhaven Lab senior scientist Stephen Dewey. Dewey first identified vigabatrin as a potential addiction treatment and has conducted more than 20 years of preclinical research with this promising medication.

Earlier studies at Brookhaven Lab found a strong connection between obesity and addiction, including similar changes in the brains of the obese and those addicted to drugs like cocaine. Based on these connections, Dewey hypothesized that vigabatrin would quench food cravings in the lab rats.

"Given the growing obesity epidemic, we felt that examining vigabatrin's therapeutic efficacy for obesity was particularly relevant," Dewey said. A total of 50 adolescent and adult animals, both genetically bred "fat" and normal-weight animals, were assigned to either a control group or groups that received vigabatrin at various dose levels and were monitored for up to 40 days. The controls received daily salt water (saline) injections, while those in the study groups received up to 300 milligrams (mg) of vigabatrin a day. All animals received injections for two 7-13-day periods, with breaks in between.

At the end of the 40-day period, all animals receiving vigabatrin weighed significantly less than the controls. The obese animals receiving the 300mg dose weighed far less and consumed less food than the 150 and 75mg groups. The obese animals receiving vigabatrin lost an average of 19 percent of their initial weight, while non-obese animals lost between 12 and 20 percent of their weight.

"The fact that these results occurred in genetically obese animals offers hope that this drug could potentially treat severe obesity," said Dewey. "This would appear to be true even if the obesity results from binge eating, as this disorder is characterized by eating patterns that are similar to drug-taking patterns in those with cocaine dependency."

Source: Brookhaven National Laboratory

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