MCFIP - Supported by bioinformatic search, memantine increases levels of nitric oxide (NO). Our modeling of the interactions between neuropeptides provides verifiable proof that NO is a primary factor to form neuropeptide Y. Imbalances resulting from excessive NPY can disrupt the homeostatic relationship pancreatic polypeptide that prevents the formation of brain derived neurotropic factor (BDNF) that is crucial to prevent neurocellular plaque that can cause dementia.

For discussions relative to neuropeptide activities that can cause dementia, the following can be used to discuss memantine that is known to increase NO and can be a factor for increasing BDNF.
https://www.ncbi.nlm.nih.gov/pubmed/22327556

Note: The issue of NO increases as a factor to prevent Chagas disease must be addressed as a separate issue.

https://www.sciencedaily.com/releases/2019/09/190919181131.htm

Alzheimer's drug also treats parasitic Chagas disease

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Source:

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Summary:

The drugs currently used to treat Chagas disease, a neglected tropical disease, have serious side effects and limited use in those with chronic disease. Now, researchers have reported that memantine, a drug currently used to treat Alzheimer's disease, can diminish the number of parasites in mice with Chagas disease, and increase the survival rate of the animals.

The drugs currently used to treat Chagas disease, a neglected tropical disease, have serious side effects and limited use in those with chronic disease. Now, researchers have reported in *PLOS Neglected Tropical Diseases* that memantine, a drug currently used to treat Alzheimer's disease, can diminish the number of parasites in mice with Chagas disease, and increase the survival rate of the animals.

Chagas disease, caused by the protozoan Trypanosoma cruzi affects 5 to 6 million people in the Americas. The disease can be divided into acute and chronic phases, with the clinical phase causing heart, esophagus or intestinal symptoms. The two drugs that have been used to treat Chagas for the last 50 years -- nifurtimox and benznidazole -- are highly effective in the acute phase but used sparingly in the chronic phase due to serious side effects that occur with long-term treatment.

In the new work, Ariel M. Silber of Universidade de São Paulo, Brazil, and colleagues studied memantine, which works on the central nervous system of animals but has also been shown to kill protozoa. The researchers first studied the effect of different concentrations of memantine on cultured macrophages -- a type of white blood cell -- that were infected with T. cruzi. Next, they tested the drug in T. cruzi-infected mice.

The team found that memantine reduced the number of T. cruzi-infected macrophages in a dose-dependent way; more drug led to a greater reduction in the infection. In mice with Chagas disease, memantine lowered levels of the parasite by 40% and increased survival rates from 7.5% to 12.5%. The mice treated with memantine also had 35.3% lower parasite levels in their hearts compared to control animals.

"All these findings point memantine as an interesting starting point for the development of an optimized alternative therapy for Chagas disease," the researchers say.

Story Source:

Materials provided by **PLOS**. *Note: Content may be edited for style and length.*

Journal Reference:

1. Higo Fernando Santos Souza, Sandra Carla Rocha, Flávia Silva Damasceno, Ludmila Nakamura Rapado, Elisabeth Mieko Furusho Pral, Claudio Romero Farias Marinho, Ariel Mariano Silber. **The effect of memantine, an antagonist of the NMDA glutamate receptor, in in vitro and in vivo infections by Trypanosoma cruzi**. *PLOS Neglected Tropical Diseases*, 2019; 13 (9): e0007226 DOI: 10.1371/journal.pntd.0007226