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## "Viagra" could reduce multiple sclerosis symptoms



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Universitat Autònoma de Barcelona researchers have discovered that "Viagra" drastically reduces multiple sclerosis symptoms in animal models with the disease. The research, published in *Acta Neuropathologica*, demonstrates that a practically complete recovery occurs in 50% of the animals after eight days of treatment. Researchers are confident that clinical trials soon will be carried out in patients given that the drug is well tolerated and has been used to treat sexual dysfunction in some multiple sclerosis patients.

Multiple sclerosis is the most common chronic inflammatory disease of the central nervous system and one of the main causes of disability among young adults. The disease is caused by the presence of multiple focuses of demyelination (loss of myelin sheaths around the axons, affecting the ability of neurons to communicate) and neurodegeneration in different areas of the central nervous system. There is currently no cure for the disease, although some drugs have

proven effective in fighting symptoms and preventing it from progressing.

A research team from the UAB Institute of Biotechnology and Biomedicine directed by Dr Agustina García, in collaboration with the research team directed by Dr Juan Hidalgo from the UAB Institute of Neurosciences, has studied the effects of a treatment using sildenafil, sold as "Viagra", in an animal model of multiple sclerosis known as experimental autoimmune encephalomyelitis (EAE). Researchers demonstrated that a daily treatment with sildenafil after disease onset quickly reduced clinical signs, with a practically complete recovery in 50% of the cases after eight days of treatment. Scientists observed how the drug reduced the infiltration of inflammatory cells into the white matter of the spinal cord, thus reducing damage to the nerve cell's axon and facilitating myelin repair.

Sildenafil, together with tadalafil ("Cialis") and vardenafil ("Levitra"), form part of a group of vasodilator drugs known as phosphodiesterase type 5 (PDE5) inhibitors, used in the treatment of erectile dysfunction and pulmonary arterial hypertension. Recent studies in animal models of central nervous system pathologies already pointed to the fact that in addition to vasodilation, these drugs could contain other neuroprotective actions and suggest their usefulness as possible treatments of both acute (cerebrovascular stroke) and chronic (Alzheimer's) neuropathologies. In fact, in a research published in 2010 in the Journal of Neurochemistry, the same research group from UAB demonstrated that one of these inhibitors reduced neuroinflammation and neuronal damage in animal models of traumatic brain injury.

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## References

"Sildenafil (Viagra) ameliorates clinical symptoms and neuropathology in a mouse model of multiple sclerosis". Pifarré et al. *Acta Neuropathol* (2011) 121:499–508

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