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# A pilot trial of low-dose naltrexone in primary progressive multiple sclerosis.

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## Abstract

A sixth month phase II multicenter-pilot trial with a low dose of the opiate antagonist Naltrexone (LDN) has been carried out in 40 patients with primary progressive multiple sclerosis (PPMS). The primary end points were safety and tolerability. Secondary outcomes were efficacy on spasticity, pain, fatigue, depression, and quality of life. Clinical and biochemical evaluations were serially performed. Protein concentration of beta-endorphins (BE) and mRNA levels and allelic variants of the mu-opioid receptor gene (OPRM1) were analyzed. Five dropouts and two major adverse events occurred. The remaining adverse events did not interfere with daily living. Neurological disability progressed in only one patient. A significant reduction of spasticity was measured at the end of the trial. BE concentration increased during the trial, but no association was found between OPRM1 variants and improvement of spasticity. Our data clearly indicate that LDN is safe and well tolerated in patients with PPMS.

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