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## Memantine for the Treatment of Phantom Limb Pain: A Systematic Review.

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### Abstract

Phantom limb pain (PLP) occurs in up to 85% of patients who have undergone an amputation and remains difficult to treat. Memantine is a N-Methyl-d-aspartate receptor antagonist that has shown benefit in pain syndromes. The objective of this systematic review is to evaluate the evidence for the use of memantine in the treatment of acute and chronic PLP. MEDLINE (1956 to May 2016) and Embase (1957 to May 2016) were queried for articles that characterized the clinical outcomes of patient(s) treated with memantine for PLP. The initial search identified 185 studies and case reports. After screening, eight articles were included. One prospective study, a case report, and two case series demonstrated benefit with memantine in the treatment of acute PLP. However, in chronic PLP that persisted for over 1 year, four prospective studies failed to demonstrate significant analgesic effects with memantine. Memantine was well tolerated in all studies. Memantine appears to be a reasonable option to trial in a patient with a recent amputation or who has failed or cannot tolerate other analgesics. Additional research is needed to further determine the role of memantine in the treatment and prevention of PLP and to identify the population most likely to gain benefit.

**KEYWORDS:** N-methyl-d-aspartate receptors; amputation; memantine; neuropathic pain; phantom limb pain

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