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Plasma vitamin C is lower in postherpetic neuralgia patients and administration of vitamin C reduces spontaneous pain but not brush-evoked pain.

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Abstract

OBJECTIVES: Plasma **vitamin C** concentrations have been suggested to be related to pain modulation in postherpetic neuralgia (PHN), an intractable neuropathic pain syndrome. In this study, we first compared plasma concentrations of **vitamin C** between healthy volunteers and PHN patients and then designed a symptom-based and mechanism-based approach to assess the analgesic effect of intravenous **vitamin C** on spontaneous and brush-evoked pain.

METHODS: Study 1 was cross-sectional that enrolled 39 healthy volunteers and 38 PHN patients. Study 2 was a double-blinded, placebo-controlled intervention study, which comprised 41 patients randomly allocated into the ascorbate group and placebo. Each patient received normal saline infusion with or without ascorbate on days 1, 3, and 5 and answered questionnaires that included side effects; numeric rating pain scale (NRS) on spontaneous and brush-evoked pain on days 1, 3, 5, and 7; and patient global impression of change on spontaneous and brush-evoked pain on day 7.

RESULTS: Study 1 revealed that plasma concentrations of **vitamin C** were significantly lower in patients with PHN than in healthy volunteers (P<0.001). Study 2 showed that ascorbate treatment effectively restored plasma **vitamin C** concentrations in the patients and decreased spontaneous pain by 3.1 in NRS from baseline to day 7, as compared with a decrease of 0.85 in NRS by placebo treatment (P<0.001). Conversely, ascorbate treatment did not significantly affect brush-evoked pain. Ascorbate treatment also resulted in a better efficacy than placebo in patient global impression of change on spontaneous pain (P<0.001) on day 7 and did not affect brush-evoked pain. No side effects were observed.

CONCLUSIONS: Plasma **vitamin C** status plays a role in PHN, and intravenous ascorbate

helps relieve spontaneous pain in PHN.

Comment in

The **vitamin C** controversy. [Clin J Pain. 2010]

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