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The effectiveness and safety of acupuncture/electroacupuncture for chemotherapy-induced peripheral neuropathy: a systematic review and meta-analysis

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Abstract

Objective: Chemotherapy-induced peripheral neuropathy (CIPN) is a dose-limiting adverse effect of anticancer agents with virtually no effective treatment. Safe and effective therapies are needed urgently. Acupuncture shows therapeutic possibilities in this regard but needs to be further evaluated.

Methods: A systematic search was conducted in seven databases from their inception to April 2020. Randomized controlled trials (RCTs) focused on acupuncture/electroacupuncture (EA) for the treatment of CIPN were included. Revman 5.3 software was used for meta-analysis if there was no significant heterogeneity. Otherwise, qualitative analysis was utilized.

Results: Nine studies involving 582 patients were included in this review. Most of the studies exhibited unclear risk of bias because some details were not mentioned. As the clinical heterogeneity was significant, qualitative analysis was performed to describe nerve conduction velocity, effective rate for motor neuropathy, pain scores, quality of life and adverse events. Meta-analysis was performed on four studies to analyze the effective rate for sensory neuropathy due to inconspicuous heterogeneity. The results indicated that acupuncture may generate a better effect on sensory neuropathy than vitamin B (risk ratio = 1.60, 95% confidence interval = 1.31-1.95, $I^2 = 0\%$, $p < 0.00001$). The efficacy of EA plus glutathione (GSH) appeared to be better than that of GSH alone in alleviating sensory neurotoxicity and in improving nerve conduction velocity. Acupuncture plus methylcobalamin showed more favorable effects than methylcobalamin alone in relieving neuralgia, restoring nerve conduction velocity and improving quality of life. In terms of pain relief and improved CIPN-specific quality of life, acupuncture plus standard care was better than standard care alone. In terms of pain relief, EA was more effective than usual care.

Conclusion: Acupuncture may be effective and safe in the treatment of CIPN according to the analyzed studies. However, more studies with higher methodological quality are warranted in order to be able to draw firmer conclusions. Future rigorous RCTs will be necessary to confirm the effectiveness and safety of acupuncture for CIPN.

Keywords: acupuncture; chemotherapy-induced peripheral neuropathy; electroacupuncture; meta-analysis; systematic reviews.

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