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A double-blinded randomised controlled study of the value of sequential intravenous and oral magnesium therapy in patients with chronic low back pain with a neuropathic component.

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Abstract

Persistent mechanical irritation of the nerve root sets up a series of events mediating sensitisation of the dorsal roots and dorsal horns in the spinal cord. Current evidence supports the role of **magnesium** in blocking central sensitisation through its effect on N-methyl-d-aspartate receptors. We studied the role of **sequential intravenous** and **oral magnesium** infusion in **patients** with **chronic low back pain** with a **neuropathic component**. We recruited a cohort of 80 **patients** with **chronic low back pain** with a Leeds Assessment of **Neuropathic** Signs and Symptoms **pain** scale score ≥ 12, who were receiving a physical **therapy** programme. All **patients** were treated with anticonvulsants, antidepressants and simple analgesics; in addition 40 **patients** received placebo for 6 weeks (control group), while the other 40 **patients** received an **intravenous magnesium** infusion for 2 weeks followed by **oral magnesium** capsules for another 4 weeks (**magnesium** group). **Patients** were asked to rate their **pain** using a numerical rating scale. Lumbar spine range of motion was also determined using a long-arm goniometer. In the **magnesium** group, the **patients'** numerical rating scales revealed a significant reduction in **pain** intensity. The mean (SD) pre-treatment **value** was 7.5 (2.2) compared with 4.7 (1.8) at 6 months (p = 0.034). The reduction in **pain** intensity was accompanied

by significant improvement in lumbar spine range of motion during the follow-up period. The mean (SD) values of flexion, extension and lateral flexion movements before treatment and at 6-month follow up were 22.2 (8.4) vs 34.7 (11.5) (p = 0.018), 11.8 (3.4) vs 16.9 (3.5) (p = 0.039), 11.4 (3.6) vs 17.2 (4.4) (p = 0.035), respectively. Our findings show that a 2-week **intravenous magnesium** infusion followed by 4 weeks of **oral magnesium** supplementation can reduce **pain** intensity and improve lumbar spine mobility during a 6-month period in **patients** with refractory **chronic low back pain** with a **neuropathic component**.

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