The effect of chlorzoxazone on acute pain after spine surgery

A randomized, blinded trial

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Background.

Chlorzoxazone is a muscle relaxant administered for musculoskeletal pain, and as an analgesic adjunct for postoperative pain. Chlorzoxazone for low back pain is currently not advised due to the lack of placebo controlled trials. We explored the effect of chlorzoxazone on acute pain after spine surgery.

Methods.

110 patients were randomly assigned to 500 mg oral chlorzoxazone or placebo in this blinded study of patients having spine surgery under general anaesthesia. In the 4 hour trial period analgesia consisted of IV patient-controlled analgesia (morphine bolus 2.5 mg). Primary outcome was pain during mobilization (visual analogue scale) 2 h after the intervention. Secondary outcomes were pain at rest, opioid consumption, nausea, vomiting, sedation, and dizziness.

Results.

For pain during mobilization 2 h after the intervention, there was no significant difference between groups: 51 (21) vs. 54 (25) mm in the chlorzoxazone and placebo groups, respectively, mean difference 3 mm (95% CI -8 to 10), $P = 0.59$. For pain during mobilization and at rest (wAUC 1 – 4 hours) there were no significant differences between groups. There was no significant difference in total IV morphine use 0-4 h: Median 10 (7 - 21) vs. 13 (5 - 19) mg in the chlorzoxazone and placebo groups, respectively, $P = 0.82$. We found no significant difference in adverse effects.

Conclusion.

No analgesic effect of single-dose chlorzoxazone was demonstrated in patients with acute pain after spine surgery. Based on these findings, chlorzoxazone cannot be recommended for immediate treatment of acute pain after such procedures.

Trial Registration: www.clinicaltrials.org (NCT01933542)

Chlorzoxazone is a centrally acting benzodiazepine derivative that inhibits multisynaptic reflex arcs that produce skeletal muscle spasm. Onset of action: 1 hour. Plasma half-life 1-2 hours. Duration of action is 3-5 hours

Figure 1. Pain (VAS) during mobilization. Data are mean; error bars are 95% confidence intervals. No significant difference among groups at any time point.

Figure 2. Pain (VAS) at rest. Data are mean; error bars are 95% confidence intervals. No significant difference among groups at any time point.