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## Osteopathic Manipulative Treatment Improves Heart Surgery Outcomes: A Randomized Controlled Trial.

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#### Abstract

**BACKGROUND:** Controlling sternal pain after heart surgery is important to reduce the risk of postoperative complications, but pain is often undertreated because of contraindications and side effects of analgesic drugs. Recently, osteopathic manipulative treatment (OMT) was demonstrated to reduce pain in different clinical contexts, suggesting its potential utility after cardiac surgery. The aim of this open-label, controlled study is to assess whether OMT contributes to sternal pain relief and improves postoperative outcomes.

**METHODS:** Eighty post-sternotomy adult inpatients were randomly allocated one to one to receive a standardized cardiorespiratory rehabilitation program alone (control group) or combined with OMT. Pain intensity and respiratory functional capacity were quantified by the Visual Analogue Scale score and by a standardized breathing test, at the start and end of rehabilitation.

**RESULTS:** At the start of rehabilitation, the control group and the OMT group had similar Visual Analogue Scale median scores (controls 4, interquartile range [IQR]: 2 to 5; OMT 4, IQR: 3 to 5;  $p =$  not significant) and mean inspiratory volumes (controls  $825 \pm 381$  mL; OMT  $744 \pm 291$  mL;  $p =$  not significant). At the end of rehabilitation, the OMT group had a lower Visual Analogue Scale median score (controls 3, IQR: 2 to 4; OMT 1, IQR: 1 to 2;  $p < 0.01$ ) and higher mean inspiratory volume (controls  $1,400 \pm 588$  mL; OMT  $1,781 \pm 633$  mL;  $p < 0.01$ ). The analgesic drug intake was similar in the two groups. The hospitalization was shorter in the OMT group than in the control group ( $19.1 \pm 4.8$  versus  $21.7 \pm 6.3$  days;  $p < 0.05$ ).

**CONCLUSIONS:** The combination of standard care with OMT is effective in inducing pain

relief and functional recovery, and significantly improves the management of patients after heart surgery with sternotomy.

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