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RESEARCH REPORT

Rehabilitation with osteopathic manipulative treatment after lumbar disc surgery: A randomised, controlled pilot study

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Abstract *Background:* Despite growing evidence regarding the role of osteopathic manipulative treatment (OMT) for the management of low back pain, there is little evidence to support the use of OMT as a post-operative rehabilitation to improve the functional outcomes of lumbar disc surgery.
Objective: To assess the feasibility for a future definitive randomised control trial that would indicate whether OMT improves post-operative outcomes after lumbar microdiscectomy compared to a standard exercise programme.
Design: Randomised controlled pilot study.
Setting: Department of Spinal Surgery and Department of Spinal Rehabilitation at a major metropolitan spine surgery hospital, Seoul, South Korea.
Methods: Patients who underwent lumbar microdiscectomy due to low back pain with referred leg pain resulting from a herniated disc were enrolled in the study. Thirty-three patients aged 25—65 years were randomly assigned using a random number table to the OMT ($n = 16$) group or exercise group ($n = 17$). Patients received the allocated intervention twice a week for 4 weeks. Each session was 30 min. Primary outcomes were post-surgical functional disability and intensity of low back and leg pain. Outcome measures were assessed at baseline (2—3 weeks

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after surgery) and post-intervention (7—8 weeks after surgery). Double blinding was not feasible in the study setting.
Results: Thirty-three participants were analysed. Both rehabilitation interventions improved all primary and secondary outcomes. Post-surgical physical disability improved more with OMT rehabilitation than the exercise programme (54% vs. 26%, $P < 0.05$). Residual leg pain decreased with OMT (53%) and exercise (17%). Post-operative low back pain decreased by 37% in the OMT group and 10% in the exercise group. Patients in both groups required less frequent use of medication and were highly satisfied with the rehabilitation interventions. No side effects or complications from any intervention were reported.
Conclusion: The current pilot study shows the feasibility of a future definitive randomised control trial investigating whether rehabilitation with OMT is a viable approach for post-operative management of a lumbar microdiscectomy.

Implications for practice

- OMT may be a feasible approach for post-operative management for lumbar disc surgery.
- OMT reduced early post-operative physical disability and residual pain, with less frequent use of analgesics.
- OMT combined with surgical care for lumbar disc patients would be an valuable integrative health care model.

Introduction

Low back pain is a worldwide health problem with a lifetime prevalence rate of 80%, which affects daily physical activities.[1] Lumbar disc pain accounts for <5—10% of low back pain, but is one of the most common reasons for lumbar spine surgery.[2,3] Although <1% of patients with low back pain require surgical intervention, lumbar discectomy is one of the most commonly performed operations because of its earlier effect of reducing physical disability and relieving nerve root pain, compared with other non-operative treatments.[4,5]

Despite the objectively successful outcomes of the surgery to remove the disc material causing the pain, patient-centred unsatisfactory outcomes have been sporadically reported. The main unsatisfactory complications observed in patients following lumbar discectomy are continued post-operative physical disability affecting daily activities and residual low back and leg pain.[6,7] Therefore, post-surgical rehabilitation has been considered important to optimise the surgical outcomes by minimising these post-surgical physical complications.

Many types of post-operative rehabilitation programmes following lumbar disc surgery have been implemented including home care training, behavioural graded activity, and exercise therapy.[8—11] These interventions have been heterogeneous with regard to the timing, duration, and intensity. Although the optimal rehabilitation intervention after lumbar disc surgery is unknown, exercise programmes have been the most commonly used post-operative rehabilitation and shown to be more effective than no treatment for the residual post-operative pain at short-term follow-up.[12] Studies of high-intensity exercise rehabilitation starting immediately or 4—6 weeks after surgery have indicated that such programmes have led to a faster decrease in disability and pain than no treatment or low-intensity programmes.[13—16]

Osteopathic manipulative treatment (OMT) has been used for the management of low back pain. OMT was recommended by a recent consensus guideline for improving physical disability caused by acute and chronic low back pain.[17—19] In addition, the long term analgesic effect of OMT on lumbar spine pain was reviewed.[20] Moreover, this hands-on treatment requires significantly less analgesic use and has higher satisfaction than that associated with the standard care for low back pain.[21]

Despite growing evidence regarding the role of OMT for the management of low back pain, there is little evidence to support the use of OMT as a post-operative rehabilitation intervention to optimise the outcomes of spinal disc surgery. We performed this pilot study comparing OMT with exercise following lumbar disc surgery to assess the feasibility for a future definitive randomised control trial.