Spinal fusion slightly more effective than intensive rehabilitation for chronic low back pain

Synopsis


Questions Is spinal fusion more effective than intensive rehabilitation in improving disability, walking tolerance, quality of life and psychological distress for patients with chronic low back pain? How frequently do complications occur with the two treatments? Design Single blind multicentre randomised controlled trial with intention to treat analysis. Setting 15 UK orthopaedic and rehabilitation centres. Patients 349 participants aged 18–55 years, with chronic low back pain lasting at least one year, who were considered candidates for spinal fusion were randomly assigned to either lumbar spine fusion (176 participants of whom 139 received it) or intensive rehabilitation program based on cognitive behavioural therapy principles (173 participants of whom 151 received it). Interventions The technique for the spinal stabilisation surgery was left to the surgeon’s discretion. The intensive rehabilitation program consisted of a daily outpatient program of exercise and education five days per week for three continuous weeks. Outcomes Outcomes were measured at baseline, 6, 12, and 24 months. Disability was measured using the Oswestry disability index (range 0–100), walking tolerance with the shuttle walking test, quality of life with the SF-36, and distress with the DRAM. The primary outcomes were disability and walking tolerance at two year follow-up. Results 81% of patients were followed up at 2 years. At 2 years the surgery group had slightly greater improvement in disability: group mean and 95% CI = 4.1 (0.1 to 8.1). All other improvements in outcomes were not clinically or statistically significantly different between groups. Conclusion Spinal fusion is slightly more effective than intensive rehabilitation for improving disability in people with chronic low back pain who are candidates for spinal fusion. Complications occurred in 14% receiving surgery and 0% of those receiving intensive rehabilitation.

Commentary

This paper reports the results of a landmark study, as it is a large and well conducted trial which fills an important gap in the literature. It randomised 349 chronic low back pain patients to spinal stabilisation surgery or intensive rehabilitation (of about 75 hours) led by a physiotherapist with input from a clinical psychologist. Few trials have been carried out to evaluate spinal fusion. One Swedish trial (n = 222) compared three different surgical approaches with physiotherapy. They reported that surgery was more effective than physiotherapy but it appears that an intensive rehabilitation approach was not used (Fritzell 2002).

Fairbank et al (2005) followed up patients for 2 years with a drop out of only 19% and used intention to treat analysis. However, 28% of patients in the rehabilitation arm of the study had surgery by follow up. Twenty-two percent of those in the surgical arm of the study had rehabilitation. It took nearly 6 years to recruit patients to the study from 15 centres around the UK.

Spinal fusion surgery is associated with high rates of complications and is very expensive (Deyo 2004). There are great geographical variations in its use. About 20% of patients who see an orthopaedic surgeon or neurosurgeon in the US end up having surgery, compared with 3% in the UK. The US rate of spinal surgery is more than twice the Australian rate and about five times the UK rate (Cherkin 1994).

Fairbank et al (2005) found marginally statistically significant results in favour of the surgical group. However, they wisely concluded that the difference in outcome was not sufficient and the associated risks were too high to recommend stabilisation surgery for patients with chronic low back pain. This is consistent with the recommendations of the European Guidelines for chronic low back pain (European Guidelines 2004).

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References

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References