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Effects of customized foot orthotics on reported disability and analgesic use in patients with chronic low back pain associated with motor vehicle collisions

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Abstract

Objective: The purpose of this study was to compare reported disability due to chronic low back pain following a motor vehicle collision between groups of those using customized foot orthotics and those not using orthotics.

Methods: Sixty-six consecutive patients referred from primary care medical physicians for the complaint of chronic (>3 months) low back pain following a motor vehicle collision were included. Thirty patients received "usual care" that included prescription of an exercise therapy program in addition to analgesics. Thirty-four patients received the same therapy along with customized foot orthotics. All patients completed the Oswestry Disability Index at the initiation of the study and at 8-week follow-up. The number of participants using any type of prescription analgesic for their back pain at baseline and at 8 weeks was also recorded.

Results: All patients completed treatment, and the baseline and 8-week questionnaires. Both treatment groups were well matched in terms of age, sex distribution, and duration of low back pain, as well as baseline Oswestry Disability Index score. At 8 weeks, although both groups had improved, the group that used orthotics had a lower Oswestry Disability Index than the usual care group ($P < .05$), with a smaller proportion of the orthotics group using any form of prescribed analgesics for back pain ($P < .05$).

Conclusions: In this study, patients with chronic low back pain following a motor vehicle collision who used orthotics in addition to usual care had improved short-term outcomes compared with usual care alone.

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Introduction

Although a recent study has suggested that customized foot orthotics may be beneficial in chronic low back pain,[1] there remains a paucity of trials confirming their effectiveness.[2] There are reasons, from a biomechanical perspective,[3-7] to prescribe orthotics; but trials in primary care practice settings and in a wide variety of clinical populations are required before their routine use can be recommended. Cambron et al[1] measured the change in perceived Oswestry Disability Index scores in participants with chronic low back pain at the end of 6 weeks of orthotic treatment compared with no orthotics. They found that changes in Oswestry Disability Index scores were greater at 6 weeks in the group treated with customized foot orthotics compared with a wait-list control group. Furthermore, they demonstrated that these changes were apparent within the first 6 weeks of orthotic use; and although persisting up to 12 weeks, there was no further improvement in the period from 6 to 12 weeks of orthotic use. In other words, clinical benefit is evident in the first 6 weeks of orthotics use. This has been observed in another, uncontrolled trial.[8] The participants in the study of Cambron et al, however, were primarily drawn from the community by advertisement; and they did not specifically target a clinical population.

As chronic low back pain following motor vehicle collisions is a common clinical problem, developing in 60% of those who reportedly have whiplash-associated disorders, and is itself associated with work-related disability and increased health care utilization,[9,10] there is a need to determine if customized foot orthotics are effective in this clinical group. The purpose of this pragmatic study was to compare reported disability due to chronic low back pain following a motor vehicle collision between groups receiving usual care and using customized foot orthotics, and those receiving usual care and not using orthotics.

Methods

Participants

During 3 months in 2009, primary care physicians from 2 primary care clinics in Edmonton, Alberta, Canada, referred patients with musculoskeletal disorders, especially chronic pain. The clinics had similar clinical populations near the inner city, mainly lower socioeconomic and worker populations. Oswestry Disability Index, current medication use, before and after exercise therapy and other treatments, was typically collected at 6 to 8 weeks postconsultation. The same consultant was involved in patient care in both clinics, using the same exercise therapist (physiotherapist) for both clinics. Data were collected by the author in both practices, patients provided consent, and approval for this was obtained from the College of Physicians and Surgeons of Alberta as part of an ethics approval for practice audit.

Intervention

Consecutively referred patients, in a 3-month period in 2009, with chronic low back pain that was attributed (by the patient) to a motor vehicle collision were considered for the study. Referring physicians were encouraged to refer patients whose chief symptom was chronic (greater than 3 months) low back pain with little or no spinal pain above the T12 region and who had stated that their back pain onset followed (within days) a motor vehicle collision. A medical history and a physical examination were performed; and usual care consisted of education, referral to the clinic's physiotherapist for further spinal assessment, a tailored exercise program (that generally ran for 6-7 weeks), and advice to continue follow-up with the primary care medical physician for analgesic medications. The author and the primary care medical physicians routinely, as part of their usual practice, avoided prescribing other modalities for chronic low back pain, such as injection procedures, chiropractic therapy, acupuncture, or massage therapy, but allowed patients to seek these out if they so desired. The primary care medical physicians had a typical medication regimen, which included any of nonsteroidal anti-inflammatory drugs, acetaminophen products, cyclobenzaprine, narcotics, and gabapentin. They tended not to use antidepressants, antipsychotics, or sedatives. These patients had already received any appropriate investigations to rule out fractures, radiculopathies, and other nonbenign causes of back pain.

Orthotics and usual care group

Patients referred to the author by one of the primary care clinics received orthotics in addition to usual care. Following assessment, each patient completed an Oswestry Disability Index, referring specifically to back pain. The author then obtained foam impressions of each patient in the seated position, with the patient asked to relax their lower limb and allow the examiner to place downward pressure on the knee, along the axis