



COST ANALYSIS RELATED TO DOSE-RESPONSE OF SPINAL MANIPULATIVE THERAPY FOR CHRONIC LOW BACK PAIN: OUTCOMES FROM A RANDOMIZED CONTROLLED TRIAL

Darcy A. Vavrek, ND, MS,^a Rajiv Sharma, PhD,^b and Mitchell Haas, DC, MA^c

ABSTRACT

Objective: The purpose of this analysis is to report the incremental costs and benefits of different doses of spinal manipulative therapy (SMT) in patients with chronic low back pain (LBP).

Methods: We randomized 400 patients with chronic LBP to receive a dose of 0, 6, 12, or 18 sessions of SMT. Participants were scheduled for 18 visits for 6 weeks and received SMT or light massage control from a doctor of chiropractic. Societal costs in the year after study enrollment were estimated using patient reports of health care use and lost productivity. The main health outcomes were the number of pain-free days and disability-free days. Multiple regression was performed on outcomes and log-transformed cost data.

Results: Lost productivity accounts for most societal costs of chronic LBP. Cost of treatment and lost productivity ranged from \$3398 for 12 SMT sessions to \$3815 for 0 SMT sessions with no statistically significant differences between groups. Baseline patient characteristics related to increase in costs were greater age ($P = .03$), greater disability ($P = .01$), lower quality-adjusted life year scores ($P = .01$), and higher costs in the period preceding enrollment ($P < .01$). Pain-free and disability-free days were greater for all SMT doses compared with control, but only SMT 12 yielded a statistically significant benefit of 22.9 pain-free days ($P = .03$) and 19.8 disability-free days ($P = .04$). No statistically significant group differences in quality-adjusted life years were noted.

Conclusions: A dose of 12 SMT sessions yielded a modest benefit in pain-free and disability-free days. Care of chronic LBP with SMT did not increase the costs of treatment plus lost productivity. (*J Manipulative Physiol Ther* 2014;37:300-311)

Key Indexing Terms: *Chiropractic; Manipulation; Spinal; Low Back Pain; Costs and Cost Analysis; Health Care Costs*

The estimated incidence of moderate back pain is 10% to 15% of the adult population, with a point prevalence of 15% to 30%.¹⁻³ Low back pain (LBP) is the fifth most common reason for physician office visits in the United States.^{4,5} Among people with LBP who see a complementary and alternative medicine (CAM) practitioner for any reason, approximately 49% see a doctor of chiropractic for LBP.^{6,7} The use of CAM, including

chiropractic care, has increased significantly over the past 50 years^{2,8} and may be associated with lower treatment costs.⁹⁻¹¹

Back pain is the fourth costliest health and productivity burden for US employers among physical and mental health conditions.^{7,12} Biennial expenditures were estimated as high as \$35.7 billion for ambulatory services for chronic back pain in 2006 to 2007.¹³ Including indirect costs, annual US costs of LBP could range from \$84.1 to \$624.8 billion.^{5,7} A recent study in the United Kingdom found that patients with chronic LBP had annual treatment costs that were twice those of matched controls.¹⁴ Furthermore, episodes of LBP have been associated with increased spending on other health conditions.¹⁵

The use of any kind of patient-initiated treatment is intermittent, and ongoing LBP often persists beyond reception of care.¹⁶ The costs paid by the insurer for a course of care provided by a doctor of chiropractic may be as much as 40% less than care provided by a doctor of medicine.¹⁷ Although patients do not seem to seek

^a Assistant Professor, University of Western States, Portland, OR.

^b Associate Professor of Economics, Portland State University, Portland, OR.

^c Associate Vice President of Research, University of Western States, Portland, OR.

Submit requests for reprints to: Darcy A. Vavrek, ND, MS, Assistant Professor, 2900 NE 132nd Ave, Portland, OR 97230 (e-mail: dvavrek@uws.edu).

Paper submitted November 26, 2013; in revised form February 4, 2014; accepted March 4, 2014.

0161-4754

Copyright © 2014 by National University of Health Sciences.
<http://dx.doi.org/10.1016/j.jmpt.2014.03.002>

coordinated care across provider types within LBP episodes, perhaps this integration will improve over time.¹⁸ Few studies have been done evaluating the dose effect of spinal manipulative therapy (SMT).^{19–21} The scientific evidence on SMT for the relief of chronic LBP has been well discussed in systematic reviews.^{22,23}

Previously reported data for our trial showed a sustainable within dose-group treatment effect across multiple dose groups to 52 weeks, and although 12 SMT visits were favored, this was not well distinguished from 6 and 18 visits.²⁴ The purpose of this analysis is to report the incremental cost of treatment and lost productivity as well as the benefit in terms of pain-free (PFDs) and disability-free days (DFDs).

METHODS

Design

This secondary analysis used data from a prospective open-label, randomized controlled trial registered on ClinicalTrials.gov (NCT00376350). This trial is discussed in detail by Haas et al.²⁴ The study was conducted in Portland, Oregon, between March 2007 and July 2011. A total of 400 participants were randomized to receive a dose of 0, 6, 12, or 18 SMT sessions over 18 treatment visits with a doctor of chiropractic. All participants were assigned 3 treatments per week for 6 weeks. Treating physicians provided care at each visit: SMT or a minimal light massage control to isolate the effect of SMT from the effect of touching the patient therapeutically.

Participants

Volunteers with a current episode of chronic LBP^{25,26} of mechanical origin lasting 3 months or longer were eligible if they were at least 18 years old, ambulatory, and English literate.²⁷ Participants were required to have some LBP on at least 30 days of the prior 6 weeks and a minimum score of 25 on the 100-point pain intensity scale described below. They were excluded for contraindications to SMT such as active cancer, spine pathology, inflammatory arthropathies, autoimmune disorders, and anticoagulant conditions. Also excluded were potentially confounding conditions including neurodegenerative diseases, pain radiating below the knee, organic referred pain, and disability compensation.²⁴ This study was approved by the University of Western States Institutional Review Board.

Intervention

The SMT treatments consisted of high-velocity, low-amplitude spinal manipulation of the lumbar spine and transition thoracic regions.²⁸ The light massage used as the control intervention was gentler and of shorter duration than recommended for therapeutic massage practice.^{29,30}

Outcome Measures

The main outcome measures for this analysis were PFDs and DFDs, defined as the estimated number of days in the year after randomization that the participant was free of LBP and disability. Both PFDs and DFDs were computed using methods similar to those used by Lave et al³¹ to calculate depression-free days and by Dickinson et al³² to calculate pain-related DFDs. Patients with Modified Von Korff scores of higher than 80 were assumed to be impacted on all intervening days by pain/disability, and those with scores no greater than 20 were assumed free of pain/disability on those days. For those with intermediate pain or disability scores, the number of days of discomfort was assumed to increase linearly with the score. The mean of 2 consecutive scores was used to estimate the number of days with pain/disability in the intervening time interval.

Modified Von Korff LBP pain intensity and pain-related functional disability range from 0 to 100, with higher scores denoting greater severity.³³ The pain score is an average of 3 scales, 0 to 10 each, multiplied by 10: back pain today, worst back pain in the last 4 weeks, and average back pain in the last 4 weeks. Similarly, the disability score is the rescaled average of 3 questions, also 0 to 10 each, covering interference with daily activities, social and recreational activities, and the ability to work outside or around the house. Pain and disability are recognized as key indicators of severity in pain conditions, and indices measuring pain and disability from a composite of several patient responses have desirable psychometric properties for assessments of health.^{34,35}

Quality-adjusted life years (QALYs) were computed from EuroQol-5D measures collected at baseline and at 12, 24, 39, and 52 weeks.^{36,37} Other patient measures including reports of health care use were collected at baseline and at 6, 12, 18, 24, 39, and 52 weeks, summarizing experiences over the prior 4 weeks.

Costs

Our objective was to estimate costs from a societal perspective consisting of costs of study-provided care, patient reports of outside care, and lost productivity. Although treatment and lost productivity likely account for most costs related to LBP, some costs were not included in our data. These include the cost transportation and travel time to obtain care, as well as the cost of any equipment purchases, or modifications to accommodate LBP. Consequently, we may underestimate the full societal cost of LBP.

Treatment Costs. To estimate costs of treatment not included as part of the study protocol, we used patient reports of outside care use in the previous 4 weeks. Patient reports of care are widely used to estimate use and are regarded as reliable over short periods.³⁸ Medicare's 2009 national nonfacility (ie, nonhospital) payments were used to estimate costs of patient-reported visits to health care providers.³⁹ The resource-based relative value units (RVUs) underlying these payments is designed to reflect the resources used to provide

Download English Version:

<https://daneshyari.com/en/article/5863933>

Download Persian Version:

<https://daneshyari.com/article/5863933>

[Daneshyari.com](https://daneshyari.com)