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Clinical Study

Impact of coexistent lumbar spine disorders on clinical outcomes and physician charges associated with total hip arthroplasty

Heidi Prather, DO[a,*], Linda R. Van Dillen, PT, PhD[b], Steven M. Kymes, PhD[c], Melissa A. Armbrecht, AOS[a], Dustin Stwalley, MA[c], John C. Clohisy, MD[d]

[a]*Section of Physical Medicine and Rehabilitation, Department of Orthopedic Surgery, Washington University School of Medicine, One Barnes Plaza, Suite 11300, St Louis, MO 64110, USA*

[b]*Program in Physical Therapy, Washington University School of Medicine, St Louis, MO 64110, USA*

[c]*Center for Economic Evaluation in Medicine, Washington University School of Medicine, St Louis, MO 64110, USA*

[d]*Department of Orthopedic Surgery, Washington University School of Medicine, St Louis, MO 64110, USA*

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Abstract

BACKGROUND CONTEXT: Despite the common prevalence of lumbar spine and degenerative hip disorders, there are few descriptions of patients with coexisting hip disorders and lumbar spine disorders (LSDs). The independent economic burden of each disorder is substantial, but the financial burden when the disorders are coexisting is unknown.

PURPOSE: To determine the prevalence of coexisting hip disorders and LSDs in a large cohort of patients with hip osteoarthritis (OA) treated with total hip arthroplasty (THA) as well as the impact on pain and functional THA outcomes and physician charges.

STUDY DESIGN: This is a retrospective study performed at a tertiary university.

PATIENT SAMPLE: Three thousand two hundred six patients underwent total hip replacement from 1996 to 2008.

OUTCOME MEASURES: Self-report measures: visual analog scale. Functional measures: modified Harris Hip Score (mHHS) and University of California Los Angeles (UCLA) hip questionnaire. Economic impact measures: physician medical charges.

METHODS: *International Classification of Diseases, Version 9,* billing codes related to LSDs were cross-referenced with the 3,206 patients who had undergone a THA to determine which patients were also evaluated by a spine specialist. Demographic, hip clinical outcomes, and physician charges for patients with THA alone (THA alone) were compared with patients treated with THA and diagnosed with an LSD (THA+LSD).

RESULTS: Of 3,206 patients who underwent THA, 566 (18%) were also evaluated by a spine specialist. Of those with an LSD, 334 (59%) were women with an older average age (64.5±13.3 years) compared with patients treated with THA alone (51%, 58.5±15.5 years, p=.0001). Patients in the THA alone group as compared with the THA+LSD group had greater improvement in the mHHS (p=.0001), UCLA score (p=.0001), and pain (p=.0001). Patients in the THA+LSD group incurred on average $2,668 more in charges per episode of care as compared with patients in the THA alone

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* Corresponding author. Section of Physical Medicine and Rehabilitation, Department of Orthopedic Surgery, Washington University School of Medicine, One Barnes Plaza, Suite 11300, St Louis, MO 64110, USA. Tel.: (314) 747-2828; fax: (314) 747-2597.

E-mail address: pratherh@wustl.edu (H. Prather)

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group (p<.001). Patients in the THA+LSD group had more days per episode of care (p=.001).
CONCLUSIONS: Patients undergoing THA alone had greater improvement in function and pain relief with fewer medical charges as compared with patients undergoing a THA and treatment for an LSD. The prevalence of coexisting hip disorders and spine disorders is likely higher than currently documented. Further study is needed to improve therapeutic recommendations and determine the potential for reduction in medical expenses associated with concurrent treatment of hip OA and LSDs.

Keywords: Hip; Arthroplasty; Lumbar spine; Low back pain; Hip-spine syndrome

Introduction

Hip and spine disorders cause significant impairment and disability. The exact prevalence of these two conditions occurring together, namely the hip-spine syndrome, is unknown. Yet, coexistent disease is commonly observed in the clinical setting. The impact of these coexistent conditions on disease progression and response to treatment is also not known. Further, the health care costs of coexisting disorders are unknown. Improved diagnosis of these coexisting conditions will direct patient care and improve patient management and outcomes. Further, health care costs potentially could be reduced if treatment for the two conditions is coordinated and administered concurrently as compared with common practice, where the failure of treatment of one may then lead to a diagnostic evaluation and eventual treatment of the other disorder. A reduction in the delay of diagnosis and evaluation allows for the integration of treatment for both conditions from the onset of care, the setting of appropriate outcome goals, and potentially reduce time lost from work and activities.

Descriptions of the hip-spine syndrome are limited to coexisting hip and spine dysfunctions that occur in the setting of hip and spine degenerative changes noted on imaging [1–8]. Reference to the coexistence of hip and spine disorders was first published by Bohl and Steffee [2]. The authors described the course of six patients with continued pain after a total hip arthroplasty (THA) that was relieved with a lumbar laminectomy. In a similar study, McNamara et al. [5] described symptomatic lumbar spinal stenosis in nine patients after THA. Seven of the patients went on to have a lumbar decompression, and the surgeons reported excellent or good outcomes. Saunders et al. [7] evaluated 75 patients with hip osteoarthritis (OA) and compared them to a control group of patients without hip OA. Lumbar spine degenerative changes were significantly more common (women, p=.036 and men, p=.001) in the hip OA patients as compared with controls. The hip-spine syndrome term was first published by Offierski and MacNab [6] in 1983. The authors described the course of 35 patients and concluded that patients with concomitant hip and spine disorders need specific diagnostic tests to assess which or if both disorders cause the greatest impairment. If the impairments are ''interrelated,'' the authors concluded that addressing the hip disorder will modify the symptoms from the lumbar spine.

Fogel and Esses [3] described the constellation of symptoms in patients considered to have hip-spine syndrome with degenerative hip disease and spinal stenosis. The first study to comment on intervention for this patient population was published by Ben-Galim et al. [1] in 2007. In this study, 25 patients were evaluated with the Harris Hip Score, Oswestry Disability Index, and pain visual analog scales (VAS) for the hip and spine before, 3 months, and 2 years after THA. All outcome measures reached statistically significant improvement after THA. The authors concluded that THA improved lumbar spine pain. In a recent retrospective review by Sembrano and Polly [8], 200 patient records from a spine surgery service were evaluated. Eighty-two percent of cases reported lumbar spine pain, 12.5% of cases reported hip pain, and 14.5% reported sacroiliac joint pain. Seventeen and one-half percent reported pain in all three locations.

Diagnosing hip and spine conditions when they coexist is difficult. This is, in part, because of the similarity of symptoms, which may lead to undetected overlap of the two disorders. Lumbar radiculopathy, facet syndrome, sacroiliac joint pain, and piriformis syndrome may present with similar distributions of pain, including the lumbar spine, posterior pelvis, lateral hip, groin, and lower extremity [9–13]. Less recognized are the various distributions of symptoms related to hip disorders. Khan et al. [4] 2004 reported that 47% of patients with hip OA undergoing THA had pain in the lower extremity below the knee. Lesher et al. [14] reported patients responding to intra-articular hip injection that reported pain in the groin, lateral hip, buttock region, as well as anterior and posterior lower extremity. Prearthritic hip disorders (acetabular labral tears, femoroacetabular impingement, and developmental hip dysplasia) have also been described to present with buttock and/or low back pain (LBP) [15–18]. Because of the overlap in symptoms and diagnostic imaging findings, the specialist must often rely on their individual clinical experiences to direct diagnostic testing and treatment recommendations.

To date, there are no large-scale studies that describe this group of patients with coexisting hip and spine conditions. Despite the suspicion that the financial impact of these coexisting conditions is significant, there is also no literature that attempts to describe the magnitude of the impact. Patients who have undergone a THA for a degenerative