ACC Award Winning Paper

Outcome of Pregnancy-Related Lumbopelvic Pain Treated According to a Diagnosis-Based Decision Rule: A Prospective Observational Cohort Study

Donald R. Murphy, DC,[a,b,c] Eric L. Hurwitz, DC, PhD,[d] and Ericka E. McGovern, DC[e]

Abstract

Objective: The purpose of this study was to describe the clinical outcomes of patients with pregnancy-related lumbopelvic pain (PRLP) treated according to a diagnosis-based clinical decision rule.

Methods: This was a prospective observational cohort of consecutive patients with PRLP. Data on 115 patients were collected at baseline and on 78 patients at the end of the active treatment. Disability was measured using the Bournemouth Disability Questionnaire (BDQ). Pain intensity was measured using the Numerical Rating Scale for pain (NRS). Patients were also asked to self-rate their improvement. Care was provided by a chiropractic physician/physical therapist team.

Results: Fifty-seven patients (73%) reported their improvement as either "excellent" or "good." The mean patient-rated improvement was 61.5%. The mean improvement in BDQ was 17.8 points. The mean percentage of improvement in BDQ was 39% and the median was 48%. Mean improvement in pain was 2.9 points. Fifty-one percent of the patients had experienced clinically significant improvement in disability and 67% patients had experienced clinically significant improvement in pain. Patients were seen an average 6.8 visits. Follow-up data for an average of 11 months after the end of treatment were collected on 61 patients. Upon follow-up, 85.5% of patients rated their improvement as either "excellent" or "good." The mean patient-rated improvement was 83.2%. The mean improvement in BDQ was 28.1 points. The mean percentage of improvement in BDQ was 68% and the median was 87.5%. Mean improvement in pain was 3.5 points. Seventy-three percent of the patients had experienced clinically significant improvement in disability and 82% patients had experienced clinically significant improvement in pain.

Conclusions: The management strategy used in this study appeared to yield favorable outcomes in this patient population and appears to be a safe option for patients with PRLP, although because of this study's sample size, rare complications are not likely to be detected. In addition, the absence of randomization and a control group limits interpretation with regard to clinical effectiveness. Randomized, controlled trials are necessary to distinguish treatment effects from the natural history of PRLP. (J Manipulative Physiol Ther 2009;32:616-624)

Key Indexing Terms: *Back Pain; Pregnancy; Diagnosis; Manipulation, Spinal; Exercise; Chiropractic*

Pregnancy-related lumbopelvic pain (PRLP) is common. It has been estimated that approximately 48% to 56% of pregnant women develop lumbar and/or pelvic pain sometime during pregnancy,[1,2] with some estimates being as high as two thirds.[3,4] In many patients, the problem can be disabling.[5] In addition, women who have PRLP during pregnancy are more likely to have pain in this area during delivery.[6]

[a] Clinical Director, Rhode Island Spine Center, Pawtucket, Rhode Island.

[b] Clinical Assistant Professor, Department of Community Health, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

[c] Adjunct Associate Professor, Department of Research, New York Chiropractic College, Seneca Falls, NY.

[d] Associate Professor of Epidemiology, Department of Public Health Sciences and Epidemiology, John A. Burns School of Medicine, University of Hawaii, Manoa, Hawaii.

[e] Staff Chiropractic Physician, Rhode Island Spine Center, Pawtucket, Rhode Island.

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Submit requests for reprints to: Donald R. Murphy, DC, Rhode Island Spine Center, 600 Pawtucket Avenue, Pawtucket, RI 02860 (e-mail: *rispine@aol.com*).

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Noren et al[7] separated patients with PRLP into 3 groups, those with lumbar pain (LP), those with posterior pelvic pain (PPP), and those with a combination of both. These symptomatic groups have been found to have distinct characteristics, those with PPP having more severe functional deficit that those with LP and those with a combination of both having greater disability than either of the other groups.[7] Also, greater duration of sick leave has been found in patients with PPP than with LP.[7]

The purpose of this study is to report the outcomes of a management strategy that was founded on a diagnosis-based clinical decision rule (DBCDR), in which treatment decisions are determined by a diagnostic process that considers differential diagnostic factors, pain-generating tissues and perpetuating factors.[8] Outcomes of this approach have been reported in observational cohort studies in other patient populations,[9-11] but, as of yet, the approach has not been evaluated in the unique population of pregnant patients with lumbopelvic pain.

Methods

The study protocol was approved by the Institutional Review Board of the New York Chiropractic College. It was also reviewed by the Health Insurance Portability and Accountability Act compliance officer of the facility at which the data were gathered and were deemed to be in compliance with Health Insurance Portability and Accountability Act regulations. Data were gathered on a prospective cohort of consecutive patients seen at the Rhode Island Spine Center between February 26, 2004, and February 24, 2007. All patients signed a consent form and were given the option not to have their data included in the study.

Inclusion and Exclusion Criteria

The subject population was pregnant women with LP, PPP, or a combination of both. Inclusion criteria were as follows: pregnant; pain in the lumbar spine or posterior pelvis region or any combination of these that began after the onset of the pregnancy; age more than 18 years; able to communicate well in English; continue in treatment to at least one reexamination. Exclusion criteria were systemic illness as a cause of LBP; red flags for complications to the pregnancy (bleeding, spotting, unusual discharge, bouts of diarrhea, feeling "as if the baby is going to fall out")[12]; contraindications to study treatments (spinal fracture, spinal infection, blood dyscrasias, cauda equina syndrome, inflammatory arthropathy); unable to communicate well in English; worker's compensation/personal injury cases; pain that predated the pregnancy.

Interventions

Each patient was examined and treated in the manner that would occur in ordinary clinical circumstances at the Rhode Island Spine Center. Care was provided by a chiropractic physician/physical therapist team. Details of this DBCDR approach are provided elsewhere.[8] This decision rule is designed to allow the clinician to formulate a working diagnosis upon which treatment decisions can be made. It is based on 3 questions of diagnosis[8] (Fig 1):

1. Are the symptoms with which the patient is presenting reflective of a visceral disorder, or a serious or potentially life-threatening disease? This question considers findings such as fever, chills or rigors, previous history of cancer and, particularly in the pregnant patient, bleeding, spotting, unusual discharge, or episodes of diarrhea. The answers to this question are sought via medical history, physical examination and, when indicated, special tests.
2. From where is the patient's pain arising? This question considers signs suggestive of pain arising from disk, joint, nerve, or muscle. The following signs were considered:
   a. Centralization signs: these are thought to arise from disk pain and were evaluated via historical factors[13] as well as the end-range loading examination that is part of the McKenzie system.[14]
   b. Segmental pain provocation signs: these are thought to arise from joint pain and were evaluated via historical factors[13,15] as well as pain provocation tests.[13,16-18]
   c. Neurodynamic signs: these are thought to arise as a result of pain from neural structures, particularly the nerve root, and were evaluated via historical factors, nerve root provocation tests,[19,20] and neurologic examination.
   d. Myofascial signs: there are thought to arise from myofascial trigger points and were evaluated via trigger point palpation.[21]
3. What has gone wrong with this person as a whole that would cause the pain experience to develop and persist? This question considers factors that have the potential to perpetuate the pain experience. The following factors were considered:
   a. Dynamic instability of the lumbar spine or pelvis: this is thought to arise from impairment of the motor control system[22] and was evaluated with examination procedures such as the hip extension test,[23] the segmental instability test,[24] and the active straight leg raise test.[25]
   b. Central pain hypersensitivity: this is thought to arise from sensitization of neurons involved in the transmission, relay, localization, and emotional response to nociception as well as deficit the