



Pregnancy and chiropractic: a narrative review of the literature

Cara L. Borggren DC*

Chiropractic Clinical Resident, Northwestern Health Sciences University, College of Chiropractic, Bloomington, MN

Received 7 December 2006; received in revised form 22 March 2007; accepted 22 March 2007

Key indexing terms:

Pregnancy;
Chiropractic;
Low back pain

Abstract

Objective: The purpose of this article is to review the literature on the topic of chiropractic care during pregnancy.

Methods: A PubMed search was performed using the terms *pregnancy* and *chiropractic*. Sources were cross-referenced to obtain further articles and research information after reviewing the articles obtained through the search.

Results: Thirty-three references were used for this review. The current literature reports favorable results on the use of chiropractic care throughout pregnancy.

Conclusions: Chiropractic evaluation and treatment during pregnancy may be considered a safe and effective means of treating common musculoskeletal symptoms that affect pregnant patients. The scarcity of published literature warrants further research.

© 2007 National University of Health Sciences.

Introduction

Chiropractic care has typically included the care of pregnant patients to assure the patient a comfortable pregnancy and to help facilitate an uncomplicated labor and delivery. The literature describing the rationale for characteristics of care for this group of patients is sparse but growing. A few conducted studies support the care

of pregnant patients, but the paucity of definitive literature has resulted in a lack of consensus in approaches to chiropractic care within the profession. This article provides a narrative review of the use of chiropractic care for women during pregnancy and labor in an attempt to summarize the chiropractor's role in the comanagement of the pregnant patient.

Methods

A search of relevant articles published in the English language was conducted using a PubMed (1987-2006) search. Medical subject headings used

* College of Chiropractic, Northwestern Health Sciences University, 2501 West 84th Street, Bloomington, MN 55431-1599, USA. Tel.: +1 952 888 4777x341; fax: +1 952 886 7579.

E-mail address: cborggren@nwhealth.edu.

were the terms *pregnancy* and *chiropractic*. Key phrases searched were *low back pain in pregnancy* and *Webster Technique*. Bibliographies of all pertinent articles, after reviewing the current research articles obtained through this search, were then searched for additional references in older or non-indexed literature, and to obtain further articles and research information. In addition, standard chiropractic textbooks were searched for related citations. Thirty-three references were used for this review.

Discussion

It has been reported that approximately 50% of all pregnant women experience back pain during their pregnancy and 50% to 75% of women experience back pain during labor.¹⁻³ However, only 21% of pregnant women with back pain seek consultation with their medical physicians.^{2,4} According to the *2005 Job Analysis of Chiropractic*, surveyed chiropractors reported that they rarely treat pregnant women.⁵ However, of the pregnant population that the respondents did encounter in their practices, chiropractors reported that 72% were likely to have benefited from chiropractic care and were thus comanaged.⁵ In other research, a 2-part survey was mailed to 950 pregnant women and to 87 allopathic providers of prenatal health care. This survey reported that 31% of respondents used alternative therapies during pregnancy, and chiropractic was the third most common form of treatment sought (6%), behind massage (32%) and yoga (18%).⁶

Causes of low back pain during pregnancy

Structural adaptation in the gravid patient is a contributory source of low back pain throughout gestation. Spinal dysfunction related to changing load distributions within the motion segments of the lumbar spine and sacroiliac joints are also a factor in back pain.² Traction, pressure or stretch of the adnexa, parietal peritoneum, bladder, urethra, rectum, and pelvic structures can also cause referred pain and secondary muscle spasm.² Although the female sacrum has enough depth to enable fetal carriage, the displaced weight gain of 25 to 35 lb greatly increases the stress to the sacroiliac joints.^{7,8} As the fetus develops during gestation, this weight is projected forward and the lumbar lordosis is increased, placing extra stress on the intervertebral disks and facet joints. Through compensation, the sagittal curvature of the remainder of the spinal column increases as well. The lumbar lordosis,

designed to absorb some of the axial forces, loses integrity as a static support and may be a source of discogenic injury.⁹ In addition, the increase in circulating progesterone, estrogen, and relaxin throughout gestation, especially in the third trimester, brings about pelvic hypermobility and creates a decrease in spinal stabilization.⁹ Direct pressure of the fetus on the lumbosacral nerve roots may also be a cause of pain.⁴ Physically strenuous work and previous low back pain are factors that may also be associated with an increased risk of developing low back pain and sacroiliac dysfunction during pregnancy.³ All of these factors contribute to back pain experienced by the pregnant patient, leading some gravid patients to seek chiropractic care.

Clinical studies on chiropractic care during pregnancy

Shaw¹⁰ reports the results of a chiropractic and medical collaborative study indicating that 75% of pregnant patients who received chiropractic care during their pregnancies stated that they found relief from pain. In addition, a retrospective chart review of 400 pregnancies and deliveries investigated the relationship between pregnancy and low back pain.² The results of this survey support the hypothesis that back pain, pregnancy, and labor are associated, and emphasize the need for further studies. Findings indicated relief from back pain during the pregnancy in 84% of the cases. The authors also noted that chiropractic manipulation may significantly decrease the incidence of “back labor.” The relative risk of experiencing back labor was almost 3 times greater if back pain was experienced during the pregnancy.²

It has also been reported that there may be a relationship between back pain throughout pregnancy and a longer duration of the labor and delivery process.^{8,11} A retrospective review of statistics reported that primigravida women who seek chiropractic care throughout gestation have, on average, a 25% shorter labor time whereas multiparous women who seek chiropractic care throughout their pregnancy have, on average, 31% shorter labor times.^{8,11}

Literature within the osteopathic profession also includes evidence of improved outcomes in labor and delivery for women who receive prenatal osteopathic manipulative treatment.¹² Although the literature in the chiropractic profession dates back several decades, evidence of osteopathic manipulative treatment being used in pregnancy and labor is documented in the osteopathic profession back to the early 1900s.¹³⁻¹⁸ A

more recent retrospective case-control study using outcomes of meconium-stained amniotic fluid, preterm delivery, use of forceps, and cesarean delivery found a strong relationship between women receiving prenatal osteopathic manipulative treatment and a reduction of the occurrence of these outcomes of pregnancy, labor, and delivery, especially for meconium-stained amniotic fluid and preterm delivery.¹² An increasing number of practitioners and obstetricians are realizing the benefits of manual therapy for their pregnant patients,¹⁰ and inclusion of chiropractic or osteopathic care during patient's pregnancies and labors is becoming more widely accepted.

Mechanisms of relief of low back pain during pregnancy

Low back pain is often described as an inevitable complication of pregnancy.¹⁹ Fascial constraint and spinal pelvic subluxation may be the cause of low back pain in pregnancy.¹⁹ As the growing uterus expands, it pulls the sacral base anterior, causing an anterior tilt of the pelvis and flexion of the hips. This orientation of the pelvis causes an increase in the lumbar lordosis, which increases the activity of the iliopsoas muscles. The piriformis muscle remains in a contracted state to maintain the external rotation of the legs, which compensates for a lack of balance as the center of gravity shifts as the pregnancy progresses.²⁰ However, gentle myofascial relaxation of the piriformis and iliopsoas can greatly aid in the reduction of pain and tension. Also, improving the strength of the transversus abdominus muscle is thought to prevent some of the typical postural alterations that are seen in the third trimester that come with anterior pelvic tilt.¹⁹ Anterior translation of the cervical spine and extension of the occiput on the atlas can occur and be related to muscle spasms and suboccipital headaches to compensate for the laxity experienced as gestation progresses.²⁰ Release of these spasms can be quite beneficial in alleviating continuous cephalgia. Also, exaggerated thoracic kyphosis, anterior translation of the head, and the increased weight of the breast tissue may cause cervicothoracic pain, thoracic outlet syndrome symptoms, or myofascial pain syndromes.²¹ The hormone relaxin is found circulating in greater quantities in a woman in her third trimester.²²

In addition, a specific chiropractic adjustment called the Webster Technique has been reported by chiropractors who use it to correct potential musculoskeletal causes of intrauterine constraint.²³ *Intrauterine constraint* is defined as any force external to the developing

fetus that obstructs the normal movement of the fetus. The technique is focused particularly on women in the eighth month of pregnancy with breech presentation. To evaluate the Webster Technique, surveys were mailed to chiropractors of the International Chiropractic Pediatric Association, an organization that offers training in this specialized technique, and 82% of responding doctors reported using this technique. The doctors reported that they found favorable results in relieving the constraints that may be contributory to the malposition of the fetus, and 92% of cases resulted in resolution of the breech position.²³ These results are especially meaningful because 3% to 4.6% of all pregnancies result in a breech position.²⁴ If uncorrected, many of these presentations require cesarean delivery. The highest acceptable limit, described by the World Health Organization in 1985, for cesarean delivery rates in the United States was 15%, and in the year 1999, 22% of deliveries were performed by cesarean delivery, and 13% of these were due to breech presentation.²⁵ The increase in rates of cesarean delivery should be of concern to those providing care to the pregnant patient, especially because chiropractic has been associated with a reduction of the number of cesarean deliveries. Although some fetuses in the breech position will convert before 34 weeks of gestation, data indicate that only about 9% will do so spontaneously.²³

The chiropractor's role in breech presentation is to balance the pelvis and corresponding muscles and ligaments to remove the constraint to the patient's uterus to allow the fetus to assume the correct presenting position.²⁶ At no time does the chiropractor attempt to change the position of the fetus, as is done with external cephalic version; the chiropractor only attempts to correct a potential cause of intrauterine constraint.²³ The authors of the International Chiropractic Pediatric Association survey have suggested that this technique be further investigated regarding its role in the care of this population.²³

Evidence also exists that women who exercise during pregnancy have more energy, fewer mood swings, are able to manage stress more effectively, and achieve more restful sleep compared with sedentary pregnant women.²⁷ Women who exercise gain 21% less weight throughout gestation; enjoy shorter, easier labors (decreased by an average of 2 hours); experience fewer medical interventions (24% fewer cesarean deliveries and 14% reduction in use of forceps); experience less fetal distress; and enjoy a faster recovery.²⁷ With their training, chiropractors can also help the pregnant patient manage an exercise routine compatible for her changing body throughout pregnancy.²⁸

Safety of chiropractic care during pregnancy

A retrospective case series was performed to describe the results of chiropractic treatment offered to a sample of pregnant women.²⁹ Of 17 patients, 16 demonstrated clinically important improvement. The average time until relief was found to be a mean of 4.5 days after the initial treatment. The average number of treatments when substantial relief was achieved was 1.8 treatments. No adverse effects of treatment were reported. This observed evidence supports the hypothesis that chiropractic treatment may be effective in reducing the intensity of low back pain during pregnancy.²⁹

Although, typically, it is quite safe to perform adjustment to a pregnant patient, caution should be exercised.¹⁰ Circumstances may arise indicating that chiropractic care is not appropriate and warrant a referral. Contraindications to adjusting may include vaginal bleeding, ruptured amniotic membranes, cramping, sudden onset of pelvic pain, premature labor, placenta previa, placenta abruption, ectopic pregnancy, and moderate to severe toxemia.¹⁰ Also, the use of electrical modalities, including stimulation and ultrasound, and radiodiagnostic imaging are contraindicated during pregnancy and should be avoided.¹⁰

Adjustive procedures of the pregnant patient

The ligamentous laxity brought on by pregnancy often makes adjusting comparatively easy using the gentlest of movements.¹⁰ A patient who is comfortable will relax more completely and require a less forceful adjustment to be applied.³⁰ As it becomes uncomfortable for the pregnant patient to lay prone after about the fifth month of pregnancy, the use of tables with abdominal pieces that can be lowered may be beneficial for prone adjusting,³⁰ especially for targeting troublesome pelvic portions with the drop component of the table. In addition, as pregnancy typically causes the breast tissue to enlarge throughout the course of gestation, the use of commercially made pillows may allow proper positioning and comfort to the patient.²⁰ Side posture techniques can still be used, but the flexed leg will likely not be positioned as far cephalad toward the chest as usual.³⁰ One author has suggested that left lateral decubitus adjustments should be used.¹⁰ When the patient is supine, the head and shoulders should be elevated enough to avoid cardiovascular stress and the knees should be supported in a flexed position.³⁰ The chiropractic adjustment can be beneficial and, with proper patient positioning for

comfort and relaxation, only the slightest force need be applied to safely and successfully correct misalignment and fixation in the spine and pelvis of the pregnant chiropractic patient.³⁰

Care for the baby and mother postpartum

The normal birthing process is a potential source of trauma to the infant's spine. Some chiropractors extend their understanding of spinal segmental dysfunction, or *subluxation* in chiropractic terminology, to apply to newborn spinal function, with the resultant concern for the health of the infant. The induced vector of force that may cause trauma to the newborn includes traction of the cervical spine coupled with hyperextension during the birth process.³¹ Forceps, cesarean, and suction or vacuum extraction can also cause trauma to the newborn's cervical and thoracic spine and spinal cord³¹ and may warrant chiropractic evaluation. Brachial plexus and cervicothoracic nerve root damage, such as Klumpke's paralysis and Erb's palsy, are a potential result of applying common birthing methods.³¹ In a review of 1000 infants, Gutmann suggested that birth trauma frequently affected the atlanto-occipital joint, causing blockage or vertebral subluxation.³¹ Correction of such a presentation may be accomplished through a light, precise, biomechanical adjustment, using various gentle techniques.³²

Regarding the postpartum patient, previous research has indicated through a prospective cohort study that in patients with moderate to severe pregnancy-related pelvic pain, sacroiliac joint asymmetry laxity is predictive of persisting complaints postpartum in 77% of women.³³ The implementation of chiropractic care as part of the treatment protocol for the pregnant patient may reduce the likelihood of in utero constraint and its associated risks after parturition. Such care may also prevent or reduce the incidence of common prenatal conditions seen with neurologic and physiological involvement postpartum.³¹ Likewise, the postpartum patient faces physiological changes as the body begins to return to prepregnancy status. After delivery, rehabilitative exercises should be used for weakened spinal and abdominal muscles.²¹ Continued chiropractic care may also be beneficial in assisting proper restoration of normal spinal biomechanics.²¹

Conclusion

Although chiropractic care typically includes the care of pregnant patients, the research literature is

sparse. Biomechanical changes and stress to the neuromusculoskeletal system are present during and immediately after pregnancy. Chiropractic evaluation and treatment during this period may be warranted and considered a safe and effective means of treating common musculoskeletal symptoms that many pregnant patients encounter. The published evidence even suggests that regular chiropractic care may improve the probability of successful natural parturition.¹⁹

Acknowledgment

The author would like to express gratitude to Michael Wiles, DC, for his guidance, support, inspiration, and critical review throughout the process of publication of this review; and to Jim Hulbert, PhD, for his assistance in editorial counsel.

References

- Phillips CJ, Meyer JJ. Chiropractic care, including craniosacral therapy, during pregnancy: a static-group comparison of obstetric interventions during labor and delivery. *J Manipulative Physiol Ther* 1995;18(8):525-9.
- Diakow PRP, Gadsby TA, Gadsby JB, Gleddie JG, Leprich DJ, Scales AM. Back pain during pregnancy and labor. *J Manipulative Physiol Ther* 1991;14(2):116-8.
- Berg G, Hammer M, Moller-Nielsen J, Linden U, Thorblad J. Low back pain in pregnancy. *Obstet Gynecol* 1988;71:71-5.
- Fast A, Shapiro D, Ducommun EJ, Friedmann LW, Bouklas T, Flowman Y. Low back pain in pregnancy. *Spine* 1987;12:368.
- Christensen MG, Kollasch MW. Job analysis of chiropractic. Greeley (Colo): National Board of Chiropractic Examiners; 2005. p. 116.
- Wang SM, DeZinno P, Fermo L, et al. Complementary and alternative medicine for low-back pain in pregnancy: a cross-sectional survey. *J Altern Complement Med* 2005;11(3):459-64.
- Clancy F. Patient page: for your health: chiropractic advice for moms-to-be. *J Am Chiropr Assoc* 2003;40(11):29-30.
- Fallon JM. Textbook on chiropractic & pregnancy. Arlington, VA: International Chiropractic Association; 1994:52,109.
- DiMarco DB. The female patient: enhancing and broadening the chiropractic encounter with pregnant and postpartum patients. *J Am Chiropr Assoc* 2003;40(11):18-24.
- Shaw G. When to adjust: chiropractic and pregnancy. *J Am Chiropr Assoc* 2003;40(11):8-16.
- Fallon JM. Chiropractic and pregnancy: a partnership for the future. *ICA Int Rev Chiropr* 1990;46(6):39-42.
- King HH, Tettambel MA, Lockwood MD, Johnson KH, Arsenault DA, Quist R. Osteopathic manipulative treatment in prenatal care: a retrospective case control design study. *J Am Osteopath Assoc* 2003;103(12):577-82.
- Dooley W. Osteopathy's contribution to prenatal care. *J Am Osteopath Assoc* 1946;46:6-7.
- Hart LM. Obstetrical practice. *J Am Osteopath Assoc* 1918;609-14.
- Jones M. The value of routine manipulation in pregnancy. *J Am Osteopath Assoc* 1952;51:554-7.
- Schaeffer FE. Osteopathic obstetrics. *J Am Osteopath Assoc* 1935;35:540-2.
- Whiting LM. Can the length of labor be shortened by osteopathic treatment? *J Am Osteopath Assoc* 1911;11:917-21.
- Wood LR. Prenatal management including osteopathic manipulation. *J Am Osteopath Assoc* 1951;50:168-70.
- Vallone S. The role of chiropractic in pregnancy. *ICA Int Rev Chiropr* 2002;47-51.
- Bartol KM. Back to basics: considerations in adjusting women. *Top Clin Chiropr* 1997;4(3):1-10.
- Chalker HM. Spinal compensation of pregnancy. *Am Chiropr* 1993;15(3):23-6.
- Krantz CK. Chiropractic care in pregnancy. *Midwifery Today* 1999;52:16-7.
- Pistolesi RA. The Webster Technique: a chiropractic technique with obstetric implications. *J Manip Physiol Ther* 2002;25(6):e1-e9.
- Curtin SC, Martin JA. Births: preliminary data for 1999. *Natl Vital Stat Rep* 2000;48:1-20.
- World Health Organization. Appropriate technology for birth. *Lancet* 1985;2:436-7.
- Ohm J. Chiropractors and midwives: a look at the Webster Technique. *Midwifery Today* 2001;58:42.
- Anderson C. Exercise and pregnancy. *ICA Int Rev Chiropr* 2004;53-61.
- Thompson CK. Baby on board: the benefit of chiropractic during pregnancy for both mother and child. *J Am Chiropr Assoc* 1997;34(5):17,95.
- Lisi AJ. Chiropractic spinal manipulation for low back pain of pregnancy: a retrospective case series. *J Midwifery Women's Health* 2006;51(1):e7-e10.
- Esch S, Zachman Z. Adjustive procedures for the pregnant chiropractic patient. *Chiropr Tech* 1991;3(2):66-71.
- Howe CA. Scientific ramification for producing pre-natal and neonate chiropractic care. *Am Chiropr* 1993;15(3):20-3.
- Peet JB. Chiropractic pediatric reference manual. Shelburne, (Vt): Rose Publications; 1991. p. 25.
- Damen L, Bayrak HM, Guller-Llysal F, Lotgenny FK, Snijders HJ, Stam HJ. The prognostic value of asymmetric laxity of the sacroiliac joints in pregnancy-related pelvic pain. *Spine* 2002;27(24):2820-4.