Pregnancy-Related Pelvic Girdle Pain: Intertester Reliability of 3 Tests to Determine Asymmetric Mobility of the Sacroiliac Joints

Anneke M. van Kessel-Cobelens, PT,[a] Arianne P. Verhagen, PT, PhD,[b] Jan M. Mens, MD, PhD,[c] Chris J. Snijders, PhD,[d] and Bart W. Koes, PhD[e]

Abstract

Objective: Several tests have been developed to determine the extent of sacroiliac asymmetry during pregnancy-related pelvic girdle pain (PGP). This blinded control study investigated the intertester reliability of 3 such tests used in PGP.
Methods: A total of 62 women (ages 20-40 years) were recruited from regional obstetric practices and subsequently divided into 3 groups: (1) 20 women without PGP who were pregnant for more than 20 weeks, (2) 22 women with PGP who were pregnant for more than 20 weeks, and (3) a control group of 20 women who were not pregnant and had no back pain or PGP. All tests were performed by 2 physiotherapists independently of each other and blinded to each other's results. The 3 tests were the thumb–posterior superior iliac spines test, the heel-bank test, and the abduction test.
Results: To determine the level of agreement between the 2 testers, κ values were calculated. The overall κ is 0.30 (range, −0.22 to 0.83), which is considered as a poor agreement. The percentage agreement per test/category ranged from 45% to 95%.
Conclusion: This study of 3 tests used to determine asymmetry of the sacroiliac joints in women with pregnancy-related PGP showed them to have a poor intertester reliability. (J Manipulative Physiol Ther 2008;31:130-136)
Key Indexing Terms: *Pelvis; Pain; Sacroiliac Joint; Diagnostic Techniques and Procedures; Reproducibility of Results; Physical Examination*

Yearly, there are about 200 000 newborn babies in the Netherlands.[1] Various international scientific studies show that about 25% to 76% of all pregnant women experience pregnancy-related pelvic girdle pain (PGP).[2-8] Postpartum, 4% to 25% of women continue to have complaints.[6-10] Besides the patient's limitations in daily activity, there are also social and economic consequences, such as absenteeism and industrial disability. Pregnancy-related PGP is an important cause of women applying for a disability benefit.

In the Netherlands, there are no figures known of the incidence or prevalence of the occurrence of pregnancies with PGP; and very little is known about the natural cause.[11,12] Pelvic girdle pain is considered as pain in the lower back and pelvic region and the symphysis, with or without radiation, which can develop during pregnancy and until 3 weeks after delivery. There is no clear diagnosis or explanation for this pain; complaints vary in duration and interfere with normal daily activity. Pain especially occurs during endurance activities like standing, walking, and sitting.[11]

Two causes for developing PGP are mentioned in the literature: one is a hormonal cause, and the other is a mechanical cause. Hormone balance changes during pregnancy. Some studies mention that the increased concentration of the relaxin hormone in the blood weakens the cartilage tissues and the ligaments of all joints and thus, of the sacroiliac (SIJ) and the symphysis as well; other studies do not confirm this.[13,14] After a forced delivery or as a result of a

[a] Private Practice, Nieuw-Vennep, The Netherlands.
[b] Associate Professor, Department of General Practice, Erasmus MC, Rotterdam, The Netherlands.
[c] Associate Professor, Department of Rehabilitation Medicine, Erasmus MC, Rotterdam, The Netherlands.
[d] Professor, Department of Biomedical Physics, Erasmus MC, Rotterdam, The Netherlands.
[e] Professor, Department of General Practice Erasmus MC, Rotterdam, The Netherlands.

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Submit requests for reprints to: Arianne P. Verhagen, PhD, Department of General Practice, Erasmus MC, Post Box 2040, 3000 CA, Rotterdam, the Netherlands
(e-mail: *a.verhagen@erasmusmc.nl*).

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traumatic accident in which serious damage in fibrous structures has occurred, PGP can also develop.[11] A combination of both factors is also possible.

A possible third cause for developing PGP during pregnancy could be an asymmetry in the position and movement of the pelvic bones; that is, the right and left half of the pelvic bones are in rotated position with regard to the sacrum. Therefore, the posterior superior iliac spines (PSIS) do not align in the standing or sitting positions. In this theory, the difference in position and range of movement of the left and right SIJ could be a predetermined factor for developing PGP in pregnancy. Measurements of the SIJ with the Doppler imaging of vibration method showed a 3.8 higher risk of developing pain complaints during pregnancy in cases with a difference of laxity between the left and right SIJ. A relation between an increased mobility due to the normal increase of laxity and PGP has not been proven.[15-17]

In physiotherapy practice, PGP is mainly diagnosed by recording a patient history and physical examination.[18] Examination tests are used to show irregularities in position and mobility of the SIJ. Several studies on the diagnosis of PGP have investigated the intra- and intertester reliability of palpatory and movement tests of the SIJ and show low reliability.[19-24] Although they have low reliability, the posterior pelvic pain provocation test, the Patrick FABERE test, the Gaenslen test, and the active straight leg raise test are recommended for diagnosing PGP in the European guidelines.[25] Nevertheless, we considered it worthwhile to investigate the reliability of our palpation-based movement and position tests of the SIJ. We hypothesized that our tests in the sitting position would clearly show asymmetry reliably.

In physiotherapy practice, there is a need for reliable and simple specific tests to diagnose PGP. To detect asymmetry, several tests are available, such as the thumb-PSIS test, the heel-bank test, and the abduction test. The aim of this study was to investigate the intertester reliability of the thumb-PSIS test, the heel-bank test, and the abduction-test and to detect asymmetry in mobility of the SIJ in relation to PGP.

Methods

Study Population

All women were recruited from family health care, obstetric (midwife) practices, general practitioners, and physiotherapy clinics as well as by appeals in local papers (editorial and advertisement). In this research, women 20 to 40 years of age were included. They were divided into 3 groups: (1) women who were pregnant for more than 20 weeks and had no pelvic pain, (2) women who were pregnant for more than 20 weeks and experienced PGP, and (3) women who were not pregnant and had no low back or PGP. All patients were included based on their history. Women with specific low back pain; women with severe pathology of neurologic, orthopedic, and/or rheumatologic origin and status after trauma; and women who underwent any manual/physiotherapeutic intervention during the 3 previous months could not enter the study. Women who were not fluent in the Dutch language were also excluded. A form with written information about the aim and the design of this research was handed out before the examination. The study was initiated in a private physical therapy clinic and was guided by the ethic guidelines of the Erasmus Medical Centre University.

Two questionnaires were used to provide subjective insight into the current functioning of daily life activities: the Quebec Back Pain Disability Scale (QBPDS)[26,27] and a questionnaire with an ordinal scale in which the current degree of pregnancy-related pain was registered. If the patient answered affirmatively to the question of PGP or not PGP, the painful area was drawn on a pain location diagram. The severity of the pain was measured by means of an 11-point numerical score.

Measurement Instruments

In this study, the thumb-PSIS test, the heel-bank test, and the abduction test were examined. These tests are easy to perform during the physical examination of women with PGP to diagnose asymmetry in position and mobility of the SIJ.

Thumb-PSIS Test. The aim of this test was to identify the existence of an asymmetry in the position of the PSIS. It consists of 2 parts: a sitting position and "click-clack" movement. For the sitting position, the positions of the PSIS were measured on a horizontal line in relation to each other. The starting position of the subject was an actively upright sitting position, on a level surface, with arms crossed. The examiner was seated on a stool and palpated, with moderate pressure, the position of the caudal aspect of the PSIS (Fig 1). The relative position of the PSIS on the horizontal line was scored as equal, left PSIS higher, or right PSIS higher. The sitting position was adopted to eliminate leg length discrepancy. For the click-clack movement, the aim of this part of the test was to examine whether the mobility of both SIJs was equal. In the same starting position, the subject moved the pelvis actively, first forward and then followed by backward rotation (from lordosis to kyphosis).[28] The subject always started from mid position with a lordosing movement as far as possible and subsequently to a slow kyphosing movement. The thumbs of the examiner followed the route of movement of the PSIS. The speed of each PSIS covering this "route" must be equal. We hypothesized that if there is dysfunction in the SIJs (hypo- or hypermobility), the left and right PSIS will cover the route at a different speed (Fig 1). The first part of the test was scored dichotomously (yes/no, inclined position of the PSIS), and the click-clack movement was positive if one of the PSIS moved slower from cranial to caudal.