

Technical and measurement report

The reliability of selected motion- and pain provocation tests for the sacroiliac joint

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Received 17 March 2004; received in revised form 3 June 2005; accepted 20 September 2005

Abstract

The objective of the study was to assess inter-rater reliability of one palpation and six pain provocation tests for pain of sacroiliac origin. The sacroiliac joint (SIJ) is a potential source of low back and pelvic girdle pain. Diagnosis is made primarily by physical examination using palpation and pain provocation tests. Previous studies on the reliability of such tests have reported inconclusive and conflicting results. Fifty-six women and five men aged 18–50 years old were included in the study. Fifteen patients had ankylosing spondylitis; 30 women had post partum pelvic girdle pain for more than 6 weeks; and 16 people had no low back or pelvic girdle pain. All participants were examined twice on the same day by experienced manual therapists. Percentage agreement and kappa statistic were used to evaluate the tests reliability. Results showed percentage agreement and kappa values ranged from 67% to 97% and 0.43 to 0.84 for the pain provocation tests. For the palpation test the percent agreement was 48% and the kappa value was –0.06. Clusters of pain provocation tests were found to have good percentage agreement, and kappa values ranged from 0.51 to 0.75. In conclusion this study has shown the reliability of the pain provocation tests employed were moderate to good, and for the palpation test, reliability was poor. Clusters out of three and five pain provocation tests were found to be reliable. The cluster of tests should now be validated for assessment of diagnostic power.

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Keywords: Sacroiliac joint; Pelvic girdle pain; Clinical tests; Reliability

1. Introduction

The sacroiliac joint (SIJ) as a source of back pain is a recurrent subject of controversy (Walker, 1992), but several authors state that the SIJ is a potential source for pain in the lumbar spine and buttock area (Potter and Rothstein, 1985; Shaw, 1992; Schwarzer et al., 1995; Mooney, 1997).

The prevalence for SIJ dysfunction as a primary source of low back pain is reported from 0.4% (Cyriax, 1978) to 35% (Schwarzer et al., 1995) to 98% (Shaw,

1992). This disparity is partly explained by the lack of valid criteria that prevalence can be judged by van der Wurff et al. (2000a). Although the SIJ is accepted as a source of pain, there is no general agreement concerning the different diagnostic tests and their reliability and validity. The primary diagnosis of sacroiliac pain is made by clinical history and physical examination. A wide variety of SIJ tests are available for detecting dysfunction, but no test seems to be superior to another. Many of the tests are influenced by various structures in the lower back, the hip joint and the soft tissues overlying the SIJ and consequently the tests lose their precision (Maigne et al., 1996). Furthermore, assessment and interpretation of the tests are often not

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standardized. However, it is necessary for test results to be both valid and reliable, since reliability alone is not sufficient to support the quality of a diagnostic test (van der Wurff et al., 2000b).

Several studies have assessed inter-examiner reliability of tests for SIJ pain and dysfunction. These tests are divided into those that assess movement or position by palpation (palpation tests) and those that stress the structure to reproduce the patient's symptoms (pain provocation tests) (Laslett and Williams, 1994).

Previous studies have reported that reliability is low for palpation tests and from poor to excellent for pain provocation tests (Potter and Rothstein, 1985; Laslett and Williams, 1994; Strender et al., 1997).

A single test might not be sufficient for diagnosing SIJ pain and some authors have suggested the use of a cluster of tests (Haas, 1991; Cibulka and Koldehoff, 1999; Kokmeyer et al., 2002; Riddle and Freburger, 2002). Others doubt this will be better because it will be possible for two observers to disagree on single tests, yet be in agreement on the final conclusion (van der Wurff et al., 2000a; Freburger and Riddle, 2001). There must be an assumption that all the tests used in a cluster should have acceptable reliability.

Van der Wurff et al. (2000a,b) published a review article on reliability studies. They found that the majority of studies (six out of 11) reported that the reliability of SIJ tests for mobility and pain provocation was low. There was a tendency for 'positive' conclusions to be inversely proportional to the methodological score (van der Wurff et al., 2000a). Their recommendation for future studies was that the population should include a control group without SIJ dysfunction together with a group of patients with presumed SIJ dysfunction (van der Wurff et al., 2000b).

Because of the inconclusive and conflicting results in previous studies of tests for SIJ pain, our study aimed to assess the inter-examiner reliability for seven commonly used clinical tests. We also included tests not previously evaluated. We included only one palpation test because previous studies have reported their poor reliability. To avoid confusion and discrepancies in the testing methods, we used standardized operational definitions and the tests were performed by experienced physiotherapists who are specialized in manual therapy (MT).

2. Methods

After approval by the Committee for Medical Research Ethics, Health Region I in Norway, subjects for participation were recruited consecutively from family physicians, rheumatologists, physiotherapists, obstetricians and midwives. The study included 61 participants; women and men aged 18–50 years old.

The first group of participants were recruited among patients with ankylosing spondylitis (AS). They could have no ankylosis in the pelvic area and be without obvious kyphosis; the second group of patients were recruited among women with post partum pelvic girdle pain for more than 6 weeks; and the control group were healthy subjects with no low back pain, pelvic girdle pain or hip pain for the previous 3 months. The first and second groups were selected to increase the chance that the origin of their pain could be the SIJ.

The following data was collected for each participant: age, gender, diagnosis, number of childbirths (groups 2 and 3), duration of symptoms, former back pain, pain location using a pain drawing and pain intensity by using a visual analogue scale (VAS).

The physiotherapists in this study, specialized in MT, had an average of 5.8 years of work experience after completing their MT education.

2.1. Testing procedure

Every participant was examined by two physiotherapists, with a break of 1 h between examinations. One of the therapists examined all the participants; the second therapist was randomly selected from a pool of three therapists based on their availability for a given participant. The second assessor examined the participant first or second according to randomisation. Both assessors examined each participant and both performed all the included tests. The therapists were blinded for the participants' diagnosis, their pain history and pain drawing. The two assessors were also blinded to the results of the other. In clinical practice it is important to reproduce the patients' pain in an examination in order to determine the pain origin. In this study we have tried to take this into account, by asking the participant not only if they felt pain during testing but also if they could recognize the pain. During the examination we did not ask about pain localisation.

For the pain provocation tests, the results were classified using a specially designed examination form recording pain in three categories. They were: concordant pain (reproduction of the patients' pain), discordant pain (pain different from patients' pain) and no pain. The results for the mobility test were also classified in three categories: (1) movement in right SIJ greater than movement in left SIJ; (2) movement in right SIJ less than movement in left SIJ and; (3) movement in right SIJ equal to movement in left SIJ. After each examination the form was completed, placed in an envelope and sealed to avoid bias.

2.2. Tests

Tests 1–5 are passive pain provocation tests. Test 6 is a palpation test. Test 7 is an active pain provocation

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