
Simulation in spinal diseases

Aso Escario J
Martínez Quiñones JV
Aso Vizán A
Arregui Calvo R
Bernal Lafuente M
Alcázar Crevillén A

ABSTRACT

Simulation is frequent in spinal disease, resulting in problems for specialists like Orthopedic Surgeons, Neurosurgeons, Reumatologists, etc. Simulation requires demonstration of the intentional production of false or exaggerated symptoms following an external incentive. The clinician has difficulties in demonstrating these criteria, resulting in misdiagnosis of simulation or misinterpretation of the normal patient as a simulator, with the possibility of iatrogenic distress and litigation. We review simulation-related problems in spine, proposing a terminological, as well as a diagnostic strategy including clinical and complementary diagnosis, as a way to avoid misinterpretation and minimize the iatrogenic distress and liability. Based on the clinical-Forensic author's expertise, the literature is analyzed and the terminology readdressed to develop new terms (inconsistencies, incongruences, discrepancies and contradictions). Clinical semiology and complementary test are adapted to the new scenario. Diagnostic strategy relies on anamnesis, clinical and complementary tests, adapting them to a uniform terminology with clear meaning of signs and symptoms.

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Magnetic resonance imaging of painful metal-on-metal total hip replacement

Nikolaou VS
Petit A
Khoury V
Blain-Pare E
Zukor DJ
Huk OL
Antoniou J

ABSTRACT

Consecutive patients that had primary metal-on-metal (MoM) or metal-on-polyethylene (MoP) hip arthroplasty were prospectively enrolled to this study. All operated hips were evaluated with MRI by one radiologist who was blinded to the radiographic findings and clinical symptoms. Three groups of patients were formed: (1) thirteen MoM THRs in 13 patients with groin pain (Group 1), (2) ten MoM THRs in 10 patients with no pain (Group 2), (3) five MoP THRs in 4 patients without pain (control group). Abnormal MRI findings were distributed in all groups in a balanced way, irrespective of the patients' symptoms, prostheses, or metal ion levels. Two patients from Group 1 and one patient of Group 3 (control group) were diagnosed with a large periprosthetic mass (pseudotumor).

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The relationship between reductions in knee loading and immediate pain response whilst wearing lateral wedged insoles in knee osteoarthritis

Jones RK
Chapman GJ
Forsythe L
Parkes MJ
Felson DT

ABSTRACT

Studies of lateral wedge insoles (LWIs) in medial knee osteoarthritis (OA) have shown reductions in the average external knee adduction moment (EKAM) but no lessening of knee pain. Some treated patients actually experience increases in the EKAM which could explain the overall absence of pain response. We examined whether, in patients with painful medial OA, reductions in the EKAM were associated with lessening of knee pain. Each patient underwent gait analysis whilst walking in a control shoe and two LWI's. We evaluated the relationship between change in EKAM and change in knee pain using Spearman Rank Correlation coefficients and tested whether dichotomizing patients into biomechanical responders (decreased EKAM) and non-responders (increased EKAM) would identify those with reductions in knee pain. In 70 patients studied, the EKAM was reduced in both LWIs versus control shoe (-5.21% and -6.29% for typical and supported wedges, respectively). The change in EKAM using LWIs was not significantly associated with the direction of knee pain change. Further, 54% were biomechanical responders, but these persons did not have more knee pain reduction than non-responders. Whilst LWIs reduce EKAM, there is no clearcut relationship between change in medial load when wearing LWIs and corresponding change in knee pain.

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Inter-professional agreement of ultrasound-based diagnoses in patients with shoulder pain between physical therapists and radiologists in the Netherlands

Thoomes-de Graaf M
Scholten-Peeters GG
Duijn E
Karel YH
van den Borne MP
Beumer A
Ottenheijm RP
Dinant GJ
Tetteroo E
Lucas C
Koes BW
Verhagen AP

ABSTRACT

STUDY DESIGN:

Reliability study.

OBJECTIVES:

The aim of this study was to evaluate the interrater-reliability of the interpretation of diagnostic ultrasound in patients with shoulder pain between physical therapists and radiologists.

BACKGROUND:

Although physical therapists in The Netherlands increasingly use diagnostic ultrasound in clinical practice, there is no evidence available on its reliability.

METHODS:

A cohort study included patients with shoulder pain from primary care physiotherapy. Patients followed the usual diagnostic pathway of which diagnostic ultrasound could be a part. Patients that received diagnostic ultrasound also visited a radiologist within one week for a second one. Patients and radiologists were blinded for the diagnostic ultrasound diagnosis of the physical therapists. Agreement was assessed using Cohen's kappa statistics. Subgroup analysis was performed on education and experience.

RESULTS:

A total of 65 patients were enrolled and 13 physical therapists and 9 radiologists performed diagnostic ultrasound. We found substantial agreement (0.63 K) between physical therapists and radiologists on the assessment of full thickness tears. The overall kappa of all four diagnostic categories was 0.36, indicating fair agreement. The more experienced and highly trained physical therapists showed moderate agreement (0.43 K) compared to only slight agreement (0.17 and 0.09 K) from the less experienced and trained physical therapists with radiologists.

CONCLUSIONS:

The reliability between physical therapists and radiologist on diagnostic ultrasound of shoulder patients in primary care is borderline substantial (Kappa = 0.63) for full thickness tears only. This level of reliability is relatively low when compared with the high reliability between radiologists. More experience and training of physical therapists may increase the reliability of diagnostic ultrasound.

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Effect of kinesiology taping on pain in individuals with musculoskeletal injuries: Systematic review and meta-analysis

Montalvo AM
Cara EL
Myer GD

ABSTRACT

Kinesiology tape, an elastic tape used by sports medicine clinicians to enhance sports performance in athletes, is purported to facilitate a reduction in pain during physical activity in individuals with orthopedic injuries, but high-quality literature on this topic remains scarce. The purpose of this meta-analysis is to critically examine and review the existing literature to evaluate the effect of kinesiology tape application on pain in individuals with musculoskeletal injury. English-language publications from 2003 to 2013 were surveyed by searching SPORTDiscus, Scopus, ScienceDirect, CINAHL, Cochrane Library, PubMed, and PEDro databases using the terms kinesio tap*, kinesiology tap*, kinesiostat*, and pain. Thirteen articles investigating the effects of kinesiology tape application on pain with at least level II evidence were selected. The combined results of this meta-analysis indicate that kinesiology tape may have limited potential to reduce pain in individuals with musculoskeletal injury; however, depending on the conditions, the reduction in pain may not be clinically meaningful. Kinesiology tape application did not reduce specific pain measures related to musculoskeletal injury above and beyond other modalities compared in the context of included articles. We suggest that kinesiology tape may be used in conjunction with or in place of more traditional therapies, and further research that employs controlled measures compared with kinesiology tape is needed to evaluate efficacy.

Phys Sportsmed. 2014 May;42(2):48-57.

Preoperative Pain Neuroscience Education for Lumbar Radiculopathy: A Multi-Center Randomized Controlled Trial With One-Year Follow-Up

Louw A
Diener I
Landers MR
Puentedura EJ

ABSTRACT

STUDY DESIGN:

Multicenter, randomized, controlled trial on preoperative pain neuroscience education (NE) for lumbar radiculopathy.

OBJECTIVE:

To determine if the addition of NE to usual preoperative education would result in superior outcomes in regards to pain, function, surgical experience and healthcare utilization post-surgery

SUMMARY OF BACKGROUND DATA:

One in four patients following lumbar surgery (LS) for radiculopathy experience persistent pain and disability, which is non-responsive to perioperative treatments. NE focusing on the neurophysiology of pain has been shown to decrease pain and disability in chronic low back pain (LBP) populations.

METHODS:

Eligible patients scheduled for LS for radiculopathy were randomized to receive either usual preoperative care (UC) or a combination of UC plus one session of NE delivered by a physical therapist (verbal one-on-one) and a NE booklet. Sixty-seven patients completed the following outcomes prior to LS (baseline), and one, three, six and 12 months after LS: LBP (Numeric Rating Scale (NRS)), leg pain (NRS), function (Oswestry Disability Index), various beliefs and experiences related to LS (10 item survey with Likert responses), and post-operative utilization of healthcare (Utilization of Healthcare Questionnaire).

RESULTS:

At one-year follow up, there were no statistical difference between the experimental and control groups in regards to primary outcome measure of LBP ($p = 0.183$), leg pain ($p = 0.075$) and function ($p = 0.365$). In a majority of the categories regarding surgical experience, the NE group scored significantly better: better prepared for LS ($p = 0.001$); preoperative session preparing them for LS ($p < 0.001$) and LS meeting their expectations ($p = 0.021$). Healthcare utilization post-LS also favored the NE group ($p = 0.007$) resulting in 45% less healthcare expenditure compared to the control group in the 1-year follow-up period.

CONCLUSIONS:

NE resulted in significant behavior change. Despite a similar pain and functional trajectory over the one year trial, LS patients who received NE viewed their surgical experience more favorably and utilized less healthcare in the form of medical tests and treatments.

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Symptoms of pain do not correlate with rotator cuff tear severity: a cross-sectional study of 393 patients with a symptomatic atraumatic full-thickness rotator cuff tear

Dunn WR
Kuhn JE
Sanders R
An Q
Baumgarten KM
Bishop JY
Brophy RH
Carey JL
Holloway GB
Jones GL
Ma CB
Marx RG
McCarty EC
Poddar SK
Smith MV
Spencer EE
Vidal AF
Wolf BR
Wright RW

ABSTRACT

BACKGROUND:

For many orthopaedic disorders, symptoms correlate with disease severity. The objective of this study was to determine if pain level is related to the severity of rotator cuff disorders.

METHODS:

A cohort of 393 subjects with an atraumatic symptomatic full-thickness rotator-cuff tear treated with physical therapy was studied. Baseline pretreatment data were used to examine the relationship between the severity of rotator cuff disease and pain. Disease severity was determined by evaluating tear size, retraction, superior humeral head migration, and rotator cuff muscle atrophy. Pain was measured on the 10-point visual analog scale (VAS) in the patient-reported American Shoulder and Elbow Surgeons (ASES) score. A linear multiple regression model was constructed with use of the continuous VAS score as the dependent variable and measures of rotator cuff tear severity and other nonanatomic patient factors as the independent variables. Forty-eight percent of the patients were female, and the median age was sixty-one years. The dominant shoulder was involved in 69% of the patients. The duration of symptoms was less than one month for 8% of the patients, one to three months for 22%, four to six months for 20%, seven to twelve months for 15%, and more than a year for 36%. The tear involved only the supraspinatus in 72% of the patients; the supraspinatus and infraspinatus, with or without the teres minor, in 21%; and only the subscapularis in 7%. Humeral head migration was noted in 16%. Tendon retraction was minimal in 48%, midhumeral in 34%, glenohumeral in 13%, and to the glenoid in 5%. The median baseline VAS pain score was 4.4.

RESULTS:

Multivariable modeling, controlling for other baseline factors, identified increased comorbidities ($p = 0.002$), lower education level ($p = 0.004$), and race ($p = 0.041$) as the only significant factors associated with pain on presentation. No measure of rotator cuff tear severity correlated with pain ($p > 0.25$).

CONCLUSIONS:

Anatomic features defining the severity of atraumatic rotator cuff tears are not associated with the pain level. Factors associated with pain are comorbidities, lower education level, and race.

LEVEL OF EVIDENCE:

Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence

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The Impact of Reduction of Pain After Lumbar Spine Surgery: The Relationship Between Changes in Pain and Physical Function and Disability

Skolasky RL
Wegener ST
Maggard AM
Riley LH 3rd

ABSTRACT

STUDY DESIGN:

Prospective cohort

OBJECTIVE:

To examine the relationship between improvement in pain intensity and subsequent improvement in physical function and disability during the first 12 months after lumbar spine surgery.

SUMMARY OF BACKGROUND DATA:

Little is known about how reduction of pain intensity after surgery may predict improvements in physical function and disability.

METHODS:

We prospectively enrolled 260 individuals undergoing elective surgery for degenerative lumbar spine conditions from August 2005 through August 2011. Preoperative and postoperative (3, 6, and 12 months) assessment tools were numeric pain rating scale, Short Form 12 version 2 physical component score (physical function), and Oswestry Disability Index (disability). Changes were defined using minimum clinically important differences. The association between improvement in pain intensity and subsequent improvement in physical function and disability during the first 12 postoperative months was assessed using standard regression methods. Significance was set at a P value less than 0.05.

RESULTS:

Preoperatively, mean pain intensity was 5.2 (standard deviation [SD] 2.4), physical function was 27.9 (SD, 9.2), and disability was 40.1% (SD, 16.8%). Pain intensity had improved in 164 (63.1%) patients by 3 and 6 months and in 184 (70.8%) by 12 months. Patients with improvement in pain postoperatively were more likely to have subsequent improvement in physical function (odds ratio [OR] 2.11, 95% confidence interval [CI], 1.10-3.16) over the course of 12 postoperative months. The association between postoperative pain reduction and reduced disability was similar (OR 1.61; CI, 1.12-2.33).

CONCLUSIONS:

Most patients experienced clinically important postsurgical reductions in pain intensity by 3 months after surgery. Those patients were more likely to have clinically important improvement in physical function and reduction in disability during the first postoperative year.

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Guideline for diagnosis and treatment of subacromial pain syndrome

Diercks R
Bron C
Dorrestijn O
Meskers C
Naber R
de Ruiter T
Willems J
Winters J
van der Woude HJ

ABSTRACT

Treatment of "subacromial impingement syndrome" of the shoulder has changed drastically in the past decade. The anatomical explanation as "impingement" of the rotator cuff is not sufficient to cover the pathology. "Subacromial pain syndrome", SAPS, describes the condition better. A working group formed from a number of Dutch specialist societies, joined by the Dutch Orthopedic Association, has produced a guideline based on the available scientific evidence. This resulted in a new outlook for the treatment of subacromial pain syndrome. The important conclusions and advice from this work are as follows: (1) The diagnosis SAPS can only be made using a combination of clinical tests. (2) SAPS should preferably be treated non-operatively. (3) Acute pain should be treated with analgetics if necessary. (4) Subacromial injection with corticosteroids is indicated for persistent or recurrent symptoms. (5) Diagnostic imaging is useful after 6 weeks of symptoms. Ultrasound examination is the recommended imaging, to exclude a rotator cuff rupture. (6) Occupational interventions are useful when complaints persist for longer than 6 weeks. (7) Exercise therapy should be specific and should be of low intensity and high frequency, combining eccentric training, attention to relaxation and posture, and treatment of myofascial trigger points (including stretching of the muscles) may be considered. (8) Strict immobilization and mobilization techniques are not recommended. (9) Tendinosis calcarea can be treated by shockwave (ESWT) or needling under ultrasound guidance (barbotage). (10) Rehabilitation in a specialized unit can be considered in chronic, treatment resistant SAPS, with pain perpetuating behavior. (11) There is no convincing evidence that surgical treatment for SAPS is more effective than conservative management. (12) There is no indication for the surgical treatment of asymptomatic rotator cuff tears

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Relationship between sleep disturbance, pain, depression and functioning in long-term sick-listed patients experiencing difficulty in resuming work

Linder J
Jansen GB
Ekholm KS
Ekholm J

ABSTRACT

OBJECTIVE:

To describe the frequency of reported sleeping, depression and pain problems, the severity of these problems and the degree of self-estimated difficulties in mental functions and activities in relation to the sleep disturbance and pain category group in patients on long-term sick-leave.

STUDY DESIGN:

Cross-sectional study.

PATIENTS:

A total of 1206 patients experiencing difficulty in resuming work.

METHODS:

Patient examinations by specialists in psychiatry, orthopaedic surgery and rehabilitation medicine. Validated questionnaires, including status regarding depression, sleep, pain and functioning were used.

RESULTS:

The prevalence of sleep disturbance was 83%; 74% of the patients with moderate/severe sleep disturbance also had moderate/severe pain problems and 26% had no/mild pain problems. Fifty-seven percent of the patients with no/mild sleep disturbance and 83% of the patients with moderate/severe sleep disturbance also had depression. The degree of difficulty in performing the 6 selected International Classification of Functioning, Disability and Health activities and mental functions was higher for the category with moderate/severe sleep problems, compared with those with no/mild sleep problems.

CONCLUSIONS:

To optimize rehabilitation for patients on long-term sick-leave experiencing difficulties in returning to work, the results indicate a need also to focus attention on sleep problems and not only on pain and depression. This may entail the planning of measures to improve decision-making and concentration and alleviate lassitude, fatigability, sadness and pessimistic thoughts.

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