Welcome,

To this first-ever book of abstracts of AO Clinical Investigation and Documentation (AOCID) publications. We are proud to present you with this indispensable guide to the work conducted by AOCID and our valued network of surgeons around the world.

A quick browse through the abstracts will confirm the wide spectrum of clinical research and related subjects that AOCID has published on in 2013. We are very proud of the publications which make up this book. The majority of abstracts presented here represent the last phase of a clinical study which has run for years. Reaching the publication phase was only made possible thanks to the efforts of many people drawn from many different disciplines. All of these deserve our thanks.

When deciding on how to organize the abstracts we opted for alphabetical order by first author surname rather than categorizing the abstracts by subject. The advantage of this electronic book is that a quick search by keyword will quickly reveal the abstracts which deal with the subject you are interested in. In addition, we have copied the abstracts from PubMed whenever possible. This means that the information is presented in a familiar, easy to understand format.

This book of abstracts only covers the year 2013. The current AOCID publication list (as well as all abstracts stretching back to 2002) can be found online. Simply visit [www.aocid.org](http://www.aocid.org) and follow the link to publications. We have also listed 2013’s non-peer reviewed publications and podium and poster presentations to give you a fuller picture of the clinical investigations and subjects that absorbed us in 2013.

We hope that you enjoy this insight into the work of AOCID.

Best wishes,

Beate P Hanson,

Director of AO Clinical Investigation and Documentation.
Peer-reviewed publications

2013
Mild diabetes is not a contraindication for surgical decompression in cervical spondylotic myelopathy: results of the AOSpine North America multicenter prospective study (CSM).


Abstract

BACKGROUND CONTEXT:

Cervical spondylotic myelopathy (CSM) is a chronic spinal cord disease and can lead to progressive or stepwise neurologic decline. Several factors may influence this process, including extent of spinal cord compression, duration of symptoms, and medical comorbidities. Diabetes is a systemic disease that can impact multiple organ systems, including the central and peripheral nervous systems. There has been little information regarding the effect of diabetes on patients with coexistent CSM.

PURPOSE:

To provide empirical data regarding the effect of diabetes on treatment outcomes in patients who underwent surgical decompression for coexistent CSM.

STUDY DESIGN/SETTING:

Large prospective multicenter cohort study of patients with and without diabetes who underwent decompressive surgery for CSM.

PATIENT SAMPLE:

Two hundred thirty-six patients without and 42 patients with diabetes were enrolled. Of these, 37 were mild cases and five were moderate cases. Four required insulin. There were no severe cases associated with end-organ damage.

OUTCOME MEASURES:

Self-report measures include Neck Disability Index and version 2 of 36-Item Short Form Health Survey (SF-36v2), and functional measures include modified Japanese Orthopedic Association (mJOA) score and Nurick grade.

METHODS:

We compared presurgery symptoms and treatment outcomes between patients with and without diabetes using univariate and multivariate models, adjusting for demographics and comorbidities.

RESULTS:

Diabetic patients were older, less likely to smoke, and more likely to be on social security disability insurance. Patients with diabetes presented with a worse Nurick grade, but there were no differences in
mJOA and SF-36v2 at presentation. Overall, there was a significant improvement in all outcome parameters at 12 and 24 months. There was no difference in the level of improvement between the patients with and without diabetes, except in the SF-36v2 Physical Functioning, in which diabetic patients experienced significantly less improvement. There were no differences in surgical complication rates between diabetic patients and nondiabetic patients.

**CONCLUSIONS:**

Except for a worse Nurick grade, diabetes does not seem to affect severity of symptoms at presentation for surgery. More importantly, with the exception of the SF-36v2 Physical Functioning scores, outcomes of surgical treatment are similar in patients with diabetes and without diabetes. Surgical decompression is effective and should be offered to patients with diabetes who have symptomatic CSM and are appropriate surgical candidates.

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**KEYWORDS:**

Cervical spondylotic myelopathy; Diabetes; Functional outcomes; Quality of life; Surgical treatment

PMID: 23981820
Radiographic quantification of dynamic hip screw migration.

Audigé L, Cagienard F, Sprecher CM, Suhr N, Müller MA.

Abstract

PURPOSE:

This study aimed to propose a technique to quantify dynamic hip screw (DHS®) migration on serial anteroposterior (AP) radiographs by accounting for femoral rotation and flexion.

METHODS:

Femoral rotation and flexion were estimated using radiographic projections of the DHS® plate thickness and length, respectively. The method accuracy was evaluated using a synthetic femur fixed with a DHS® and positioned at pre-defined rotation and flexion settings. Standardised measurements of DHS® migration were trigonometrically adjusted for femoral rotation and flexion, and compared with unadjusted estimates in 34 patients.

RESULTS:

The mean difference between the estimated and true femoral rotation and flexion values was 1.3° (95% CI 0.9-1.7°) and -3.0° (95% CI -4.2° to -1.9°), respectively. Adjusted measurements of DHS® migration were significantly larger than unadjusted measurements (p = 0.045).

CONCLUSION:

The presented method allows quantification of DHS® migration with adequate bias correction due to femoral rotation and flexion.

The AO Foundation and Orthopaedic Trauma Association (AO/OTA) scapula fracture classification system: focus on body involvement.

Audigé L, Kellam JF, Lambert S, Madsen JE, Babst R, Andermahr J, Li W, Jaeger M.

Abstract

BACKGROUND:

A comprehensive system has been developed by the AO Classification Advisory Group to allow in-depth classification of scapular fractures for clinical research and surgical decision making. This paper evaluates a detailed classification system of scapular body fractures to better address the need for clinical relevance.

METHODS:

Seven experienced shoulder and orthopaedic trauma specialist surgeons participated in a follow-up series of agreement studies to specify and to evaluate the involvement of the body in scapula fractures. The last evaluation was conducted on a consecutive collection of 120 scapula fractures.

RESULTS:

There was agreement in 82% of the 120 cases with an overall κ of 0.75 when the surgeons identified body (B) fractures. Surgeons were in full agreement about involvement of the lateral inferior, medial, and superior borders in 72%, 51%, and 69% of the 101 cases identified with body involvement, respectively. The proportion of correctly classified cases with lateral inferior, medial, and superior border involvements was 78% or greater.

CONCLUSION:

Body involvement can be reliably identified by use of 3-dimensional computed tomography images. Surgeons could reliably and accurately identify superior, medial, and lateral border involvement, which is considered clinically relevant and likely sufficient for the treatment decision process and outcome prognosis. It should be applied by surgeons with a special interest in the shoulder in the framework of clinical routine as well as in research activities.

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KEYWORDS:

Development of Diagnostic Test/Classification System; Level II; Scapula fracture; accuracy; diagnostic; fracture classification; reliability; scapula body

PMID: 24076002 [PubMed - in process]
Evaluating implants in orthopaedic trials: tips for conducting research.

Bains S, Hanson B, Bhandari M.

Abstract

The availability of quality research on orthopaedic implants is important for orthopaedic clinical practice, though in many cases such research is deficient in the literature. Randomized trials are dwarfed in number by observational studies which, though also valuable, do not provide the same validity of evidence. This is partly due to the unique challenges faced by orthopaedic clinicians when attempting to conduct randomized trials in areas such as randomization, blinding, and follow-up. These challenges can be addressed with the use of techniques such as expertise-based randomization, assessment that is objective and independent, and implementation of a protocol for consistent follow-up before the study is underway. Although they do not eliminate all of the hurdles faced in implant evaluation trials, the tips outlined in this article have the potential to significantly ease the burdens of conducting high-quality research.

PMID: 24579863 [PubMed - indexed for MEDLINE]


Abstract

STUDY DESIGN:
Retrospective, multicenter cohort study.

OBJECTIVE:
Assess for differences in short- and long-term mortality between operative and nonoperative treatment for elderly patients with type II odontoid fractures.

SUMMARY OF BACKGROUND DATA:
There is controversy regarding whether operative or nonoperative management is the best treatment for elderly patients with type II odontoid fractures.

METHODS:
This is a retrospective study of consecutive patients aged 65 years or older with type II odontoid fracture from 3 level I trauma centers from 2003-2009. Demographics, comorbidities, and treatment were abstracted from medical records. Mortality outcomes were obtained from medical records and a public database. Hazard ratios (HRs) and 95% confidence intervals (CI) were calculated.

RESULTS:
A total of 322 patients were included (mean age, 81.8 yr; range, 65.0-101.5 yr). Compared with patients treated nonoperatively (n = 157), patients treated operatively (n = 165) were slightly younger (80.4 vs. 83.2 yr, P = 0.0014), had a longer hospital (15.0 vs. 7.4 d, P < 0.001) and intensive care unit (1.5 vs. 1.1 d, P = 0.008) stay, and were more likely to receive a feeding tube (18% vs. 5%, P = 0.0003). Operative and nonoperative treatment groups had similar sex distribution (P = 0.94) and Charlson comorbidity index (P = 0.11). Within 30 days of presentation, 14% of patients died, and at maximal follow-up (average = 2.05 yr; range = 0 d-7.02 yr), 44% had died. On multivariate analysis, nonoperative treatment was associated with higher 30-day mortality (HR = 3.00, 95% CI = 1.51-5.94, P = 0.0017), after adjusting for age (HR = 1.10, 95% CI = 1.05-1.14; P < 0.0001), male sex (P = 0.69), and Charlson comorbidity index (P = 0.16). At maximal follow-up, there was a trend toward higher mortality associated with nonoperative treatment (HR = 1.35, 95% CI = 0.97-1.89, P = 0.079), after adjusting for age (HR = 1.07, 95% CI = 1.05-1.10; P < 0.0001), male sex (HR = 1.55, 95% CI = 1.10-2.16; P = 0.012), and Charlson comorbidity index (HR = 1.28, 95% CI = 1.16-1.40; P < 0.0001).
CONCLUSION:

Surgical treatment of type II odontoid fracture in this elderly population did not negatively impact survival, even after adjusting for age, sex, and comorbidities. The data suggest a significant 30-day survival advantage and a trend toward improved longer-term survival for operatively treated over nonoperatively treated patients.

Level of Evidence: 4.

PMID: 23354104 [PubMed - indexed for MEDLINE] PMCID: PMC3678887
Awareness, attitudes, and perceptions of Croatian-based orthopedic and trauma surgeons toward scientific manuscripts, publishing internationally and medical writing. Results of an online questionnaire.

De Faoite D, Bakota B, Staresinić M, Kopljar M, Cvjetko I, Dobrić I.

Abstract

The objective of this survey was to identify the importance placed by Croatian-based surgeons on writing scientific manuscripts and publishing them internationally, as well as their awareness of and attitudes toward medical writing. A link to an online survey was sent to 327 Croatian-based orthopedic and trauma surgeons. The electronic questionnaire consisted of rating scales, multiple choice questions and free text reply boxes. A total of 61 surgeons based in Croatia replied to the survey, yielding a response rate of 19% (61/327). The survey results indicate that surgeons in Croatia are active in both research and the writing of manuscripts. There is also a high level of interest among them to publish internationally in English to further their careers. While 68% (38/56) of respondents initially claimed to know about medical writing, further questioning on the subject revealed a reduced level of familiarity with the concept. Only 19% (11/58) of respondents had ever engaged the services of a medical writer and they were generally satisfied with the work done across the three areas of language, editing and scientific knowledge. Medical writers are advised to increase awareness of their services among Croatian-based orthopedic and trauma surgeons who may well have a need for their expertise.

PMID: 23697268 [PubMed - indexed for MEDLINE]
Viscosupplementation for knee osteoarthritis: current evidence and recommendations.

Evaniew N1, Hanson B2, Winemaker M1.

Abstract

Osteoarthritis (OA) is the most common joint disorder worldwide and is a leading cause of pain and disability. Appropriate management of younger patients with milder disease remains a challenging area of intense research. Viscosupplementation attempts to restore the biomechanical and biochemical functions of normal synovial fluid hyaluronic acid. Several preparations with varying characteristics are currently available. The literature suggests a small benefit and relative safety, but several recent large meta-analyses have reported conflicting results. Major clinical guidelines provide inconclusive recommendations. Viscosupplementation may be a viable option in younger patients with milder OA where other non-operative modalities are also only modestly successful, but further investigation is clearly warranted. Limitations due to study heterogeneity, outcome reporting, and bias can each be addressed with improved research methodology.

PMID: 24579855 [PubMed - indexed for MEDLINE]


Abstract

BACKGROUND:

Cervical spondylotic myelopathy is the leading cause of spinal cord dysfunction worldwide. The objective of this study was to evaluate the impact of surgical decompression on functional, quality-of-life, and disability outcomes at one year after surgery in a large cohort of patients with this condition.

METHODS:

Adult patients with symptomatic cervical spondylotic myelopathy and magnetic resonance imaging evidence of spinal cord compression were enrolled at twelve North American centers from 2005 to 2007. At enrollment, the myelopathy was categorized as mild (modified Japanese Orthopaedic Association [mJOA] score ≥ 15), moderate (mJOA = 12 to 14), or severe (mJOA < 12). Patients were followed prospectively for one year, at which point the outcomes of interest included the mJOA score, Nurick grade, Neck Disability Index (NDI), and Short Form-36 version 2 (SF-36v2). All outcomes at one year were compared with the preoperative values with use of univariate paired statistics. Outcomes were also compared among the severity classes with use of one-way analysis of variance. Finally, a multivariate analysis that adjusted for baseline differences among the severity groups was performed. Treatment-related complication data were collected and the overall complication rate was calculated.

RESULTS:

Eighty-five (30.6%) of the 278 enrolled patients had mild cervical spondylotic myelopathy, 110 (39.6%) had moderate disease, and 83 (29.9%) had severe disease preoperatively. One-year follow-up data were available for 222 (85.4%) of 260 patients. There was a significant improvement from baseline to one year postoperatively (p < 0.05) in the mJOA score, Nurick grade, NDI score, and all SF-36v2 health dimensions (including the mental and physical health composite scores) except general health. With the exception of the change in the mJOA, the degree of improvement did not depend on the severity of the preoperative symptoms. These results remained unchanged after adjusting for relevant confounders in the multivariate analysis. Fifty-two patients experienced complications (prevalence, 18.7%), with no significant differences among the severity groups.

CONCLUSIONS:

Surgical decompression for the treatment of cervical spondylotic myelopathy was associated with improvement in functional, disability-related, and quality-of-life outcomes at one year of follow-up for all disease severity categories. Furthermore, complication rates observed in the study were commensurate with those in previously reported cervical spondylotic myelopathy series.
Comment in


PMID: 24048552 [PubMed - indexed for MEDLINE]
Predictors of treatment outcomes in geriatric patients with odontoid fractures: AOSpine North America multi-centre prospective GOF study.

Fehlings MG, Arun R, Vaccaro AR, Arnold PM, Chapman JR, Kopjar B.

Abstract

STUDY DESIGN:
Multicenter prospective cohort study.

OBJECTIVE:
To identify patient and treatment characteristics associated with treatment success or failure in the management of odontoid fractures.

SUMMARY OF BACKGROUND DATA:
Odontoid fractures are the most common cervical spine fractures in the elderly and represent a significant management challenge with widely divergent views regarding operative versus nonoperative management.

METHODS:
A total of 159 patients 65 years and older with radiographically confirmed type II odontoid fractures were enrolled at 10 sites in the United States and 1 site in Canada between January 2006 and May 2009. Subjects were followed at 6 and 12 months post-initial treatment with Neck Disability Index and SF-36v2 scores. Final treatment outcome was classified as failure or success. Treatment failure was defined as death by any cause, decline in Neck Disability Index by more than 9.5 absolute points, or occurrence of a major treatment-related complication. Baseline characteristics between the groups were compared using t test for the continuous variables and χ² test for the categorical variables. Baseline characteristics associated with treatment outcomes were identified by multiple logistic stepwise regression analysis.

RESULTS:
A total of 101 (63.5%) patients were treated surgically and 58 (36.5%) conservatively. Forty-four (27.7%) patients had a successful outcome and 86 (54.1%) had a treatment failure; for 29 patients (18.2%), treatment status could not be determined (3 withdrew; 26 were lost to follow-up). Twenty-nine (18.2%) patients expired before the 12-month follow-up. Follow-up information was available for 103 of 127 surviving (81.1%) patients. Twelve-month SF-36v2 scores were worse in the failure group. The characteristics associated with treatment failure were older age (odds ratio [OR] = 1.08 for each year of age); initial nonsurgical treatment (OR = 3.09); male sex (OR = 4.33), and baseline neurological system comorbidity (OR = 4.13).

CONCLUSION:
Older age, initial nonsurgical treatment, and male sex are associated with failure of treatment in patients with geriatric odontoid fractures.
Anterior versus posterior surgical approaches to treat cervical spondylotic myelopathy: outcomes of the prospective multicenter AOSpine North America CSM study in 264 patients.


Abstract

**STUDY DESIGN:**
A prospective observational multicenter study.

**OBJECTIVE:**
To help solve the debate regarding whether the anterior or posterior surgical approach is optimal for patients with cervical spondylotic myelopathy (CSM).

**SUMMARY OF BACKGROUND DATA:**
The optimal surgical approach to treat CSM remains debated with varying opinions favoring anterior versus posterior surgical approaches. We present an analysis of a prospective observational multicenter study examining outcomes of surgical treatment for CSM.

**METHODS:**
A total of 278 subjects from 12 sites in North America received anterior/posterior or combined surgery at the discretion of the surgeon. This study focused on subjects who had either anterior or posterior surgery (n = 264, follow-up rate, 87%). Outcome measures included the modified Japanese Orthopedic Assessment scale, the Nurick scale, the Neck Disability Index, and the Short-Form 36 (SF-36) Health Survey version 2 Physical and Mental Component Scores.

**RESULTS:**
One hundred and sixty-nine patients were treated anteriorly and 95 underwent posterior surgery. Anterior surgical cases were younger and had less severe myelopathy as assessed by mJOA and Nurick scores. There were no baseline differences in Neck Disability Index or SF-36 between the anterior and posterior cases. Improvement in the mJOA was significantly lower in the anterior group than posterior group (2.47 vs. 3.62, respectively, P < 0.01), although the groups started at different levels of baseline impairment. The extent of improvement in the Nurick Scale, Neck Disability Index, SF-36 version 2 Physical Component Score, and SF-36 version 2 Mental Component Score did not differ between the groups.

**CONCLUSION:**
Patients with CSM show significant improvements in several health-related outcome measures with either anterior or posterior surgery. Importantly, patients treated with anterior techniques were younger, with less severe impairment and more focal pathology. We demonstrate for the first time that, when patient and disease factors are controlled for, anterior and posterior surgical techniques have equivalent efficacy in the treatment of CSM.
LEVEL OF EVIDENCE: 3.

PMID: 24108289 [PubMed - in process]
Clinical evaluation of a neuroprotective drug in patients with cervical spondylotic myelopathy undergoing surgical treatment: design and rationale for the CSM-Protect trial.

Fehlings MG, Wilson JR, Karadimas SK, Arnold PM, Kopjar B.

Abstract

STUDY DESIGN:

Descriptive article and narrative review.

OBJECTIVE:

To explain the rationale and design of the cervical spondylotic myelopathy (CSM)-Protect clinical trial that aims to elucidate the efficacy and safety of riluzole in the context of CSM.

SUMMARY OF BACKGROUND DATA:

CSM is the most common cause of spinal cord-related dysfunction internationally. Although surgery is effective in preventing the progression of impairment, and in some cases improving functional outcomes, many patients continue to exhibit significant disability in the postoperative setting. Evidence from preclinical studies suggests that glutamate-related excitotoxicity may contribute to the pathology of CSM and that administration of the sodium and glutamate-blocking medication riluzole, when combined with spinal cord decompression, may mitigate this effect and improve neurobehavioral outcomes. Although riluzole is FDA approved and has been shown to be safe and effective in the context of amyotrophic lateral sclerosis, its efficacy and safety in the context of CSM remain unknown.

METHODS:

Descriptive article with narrative review of the literature.

RESULTS:

In addition to providing pertinent preclinical background on the topic, this descriptive article and narrative review discusses the design and current status of an ongoing phase III randomized controlled trial evaluating the efficacy and safety of riluzole, combined with surgical decompression, in the treatment of CSM.

CONCLUSION:

On the basis of current projections, we estimate that the interim analysis for this study will take place in the spring of 2014, at which time an adaptive sample size adjustment may take place.

PMID: 23962993 [PubMed - in process]
Outcome after high tibial open-wedge osteotomy: a retrospective evaluation of 533 patients.

Floerkemeier S, Staubli AE, Schroeter S, Goldhahn S, Lobenhoffer P.

Abstract

PURPOSE:

Open-wedge valgus high tibial osteotomy is a well-established procedure in the management of medial osteoarthritis of the knee. In recent years, improved osteotomy and fixation methods have led to an increased use of this technique. The aim of this study was to identify predictive parameters for the clinical outcome after valgus high tibial osteotomy.

METHODS:

A multicentre case series involving retrospective capture of baseline data and prospective outcome assessment of patients with knee OA who underwent an osteotomy using Tomofix(®) plate was conducted. Functional outcome was assessed using Oxford 12-item Knee Score.

RESULTS:

Before surgery, the majority of patients had grade III (52%) and grade IV (33%) lesions according to Outerbridge classification. Three hundred and eighty-six of 533 eligible patients were interviewed for follow-up after an average of 3.6 years. The mean Oxford Knee Score was 43 points. Six per cent experienced at least one local postoperative complication. There was a tendency towards lower score results in patients with a higher preoperative degree of the medial cartilage lesion. No correlation between patient age and the Oxford Knee Score was observed.

CONCLUSION:

Being male, being operated by an experienced surgeon, having no intake of pain medication at follow-up and having no postoperative complication are positive predictors of the Oxford Knee Score up to 5 years after surgery. This study reveals favourable midterm results after valgus high tibial osteotomy in varus osteoarthritis, even in older patients with high degree of cartilage damage.

LEVEL OF EVIDENCE: II.

PMID: 22744433 [PubMed - indexed for MEDLINE]
The natural history of knee osteoarthritis: India-based knee osteoarthritis evaluation (iKare): a study protocol.


Abstract

METHODOLOGY:

Multi-center, cross-sectional, observational study. STUDY CENTER(S): Multiple centers in India. NUMBER OF PARTICIPANTS: 1,000. PRIMARY RESEARCH OBJECTIVE: To characterize patients and treatment utilized for orthopedic patients presenting to both private and public hospital centers in India with knee pain and symptoms suggestive of knee arthritis.

INCLUSION CRITERIA:

All patients 18 years of age or older who present to a recruiting hospital for treatment of knee pain will be eligible for participation. The subjects must be able to understand and complete the questionnaire.

EXCLUSION CRITERIA:

Patients with total knee replacement, open wound or evidence of recent surgery, or with a current or a history of tumor and/or fracture in the tibial plateau, femoral condyle or patella, in the affected knee are not eligible.

STUDY OUTCOMES:

This study aims to characterize the following: general demographics of patients presenting with knee pain, severity of knee symptoms at time of presentation, severity of knee pathology at time of presentation, factors associated with the decision to seek medical care, previous treatments and health care contacts, planned treatment, and gaps in treatment perceived by the patient and treating surgeons.

PMID: 24579853 [PubMed - indexed for MEDLINE]
[Proximal humeral fracture].

[Article in German]

Hanson BP, Audigé L.

PMID: 23564236 [PubMed - indexed for MEDLINE]
[How to perform a study – some practical tips based on our experience].

Hanson B, De Faoite D.

[Article not listed on PubMed].
Challenges in conducting multicenter, multicultural, and multilingual trials: a view from the literature and real-life experience reports.

Hanson B, De Faoite D.

Abstract

A trend toward international multicenter clinical trials in the medical device industry is helping to increase recruitment figures and to improve the generalizability of results, among other factors. However, working globally creates its own unique set of problems, which are rarely discussed in the literature. This article considers these issues from multicenter, multicultural, and multilingual perspectives. A multicenter study implies a replication of work to coordinate research sites that are working under different regulations. Standardizing elements of the clinical trial is essential for proper comparison of results. Multicultural differences manifest themselves in different forms in international clinical research. However, the impact of culture on a study's success is a real issue, particularly when patient-reported outcomes form part of the trial. A trial that is conducted globally obviously requires the use of local language material, but this element is fraught with the possibility of mistranslation and misunderstanding. In this article, we also examine the composition of a research team and how to keep everyone involved in a global clinical trial both informed and enthused about a trial that may last several years. Examples from our own clinical investigations are reported throughout this article.

PMID: 24579862 [PubMed - indexed for MEDLINE]
Upper-extremity and mobility subdomains from the Patient-Reported Outcomes Measurement Information System (PROMIS) adult physical functioning item bank.

Hays RD, Spritzer KL, Amtmann D, Lai JS, Dewitt EM, Rothrock N, Dewalt DA, Riley WT, Fries JF, Krishnan E.

Abstract

OBJECTIVE:

To create upper-extremity and mobility subdomain scores from the Patient-Reported Outcomes Measurement Information System (PROMIS) physical functioning adult item bank.

DESIGN:

Expert reviews were used to identify upper-extremity and mobility items from the PROMIS item bank. Psychometric analyses were conducted to assess empirical support for scoring upper-extremity and mobility subdomains.

SETTING:

Data were collected from the U.S. general population and multiple disease groups via self-administered surveys.

PARTICIPANTS:

The sample (N=21,773) included 21,133 English-speaking adults who participated in the PROMIS wave 1 data collection and 640 Spanish-speaking Latino adults recruited separately.

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

We used English- and Spanish-language data and existing PROMIS item parameters for the physical functioning item bank to estimate upper-extremity and mobility scores. In addition, we fit graded response models to calibrate the upper-extremity items and mobility items separately, compare separate to combined calibrations, and produce subdomain scores.

RESULTS:

After eliminating items because of local dependency, 16 items remained to assess upper extremity and 17 items to assess mobility. The estimated correlation between upper extremity and mobility was .59 using existing PROMIS physical functioning item parameters (r=.60 using parameters calibrated separately for upper-extremity and mobility items).
CONCLUSIONS:

Upper-extremity and mobility subdomains shared about 35% of the variance in common, and produced comparable scores whether calibrated separately or together. The identification of the subset of items tapping these 2 aspects of physical functioning and scored using the existing PROMIS parameters provides the option of scoring these subdomains in addition to the overall physical functioning score.

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KEYWORDS:

CFI; Confirmatory Fit Index; Lower extremity; PFA; PFB; PFC; PROMIS; Patient-Reported Outcomes Measurement Information System; Physical Functioning-A; Physical Functioning-B; Physical Functioning-C; Psychometrics; RMSEA; Rehabilitation; Root Mean Square Error of Approximation; Upper extremity

Operative versus non-operative treatment for two-part surgical neck fractures of the proximal humerus.

Hauschild O, Konrad G, Audige L, de Boer P, Lambert SM, Hertel R, Südkamp NP.

Abstract

INTRODUCTION:

Aim of this study was to evaluate outcomes of operative as compared to conservative treatment for two-part humerus fractures at the surgical neck.

METHODS:

Data from a prospective multi-centre cohort study on four treatment options (conservative treatment and three implants, i.e. LPHP, PHILOS and PHN) for proximal humerus fractures were evaluated in this post hoc analysis. All patients with two-part fractures of the surgical neck (AO types A2, n = 54 and A3, n = 110) were identified and included for the analysis. All operatively treated patients were gathered and compared to those receiving conservative treatment. Primary outcome parameters were pain, range of motion and absolute and relative Constant scores at 3, 6 and 12 months following injury and coronal plane alignment at 12 months.

RESULTS:

Operative (n = 133) and non-operative (n = 31) groups were comparable with regard to all parameters assessed including mean age (62.9 vs. 65.6, P = 0.479), gender (27 vs. 29 % male, P = 0.826) and fracture distribution (65 vs. 77 % A3 type, P = 0.207). 26 of the 31 conservatively treated and 103 of the 133 operatively treated patients (84 and 77 %, respectively) were available for final follow-up. There was a continuous improvement for all outcome parameters in both treatment groups (P < 0.001). Operative treatment resulted in a more effective reduction of pain at 3 months (51 vs. 76 % reporting pain at fracture site, P = 0.03) and a reduction of coronal plane malalignment. Both range of motion and Constant scores were, however, comparable in both groups at all follow-up visits. Relative and absolute Constant scores were generally excellent at final follow-up (74 vs. 74, P = 0.528 and 89 vs. 91, P = 0.494, respectively).

CONCLUSIONS:

Both non-operative treatment and operative treatment using modern implants (LPHP, PHILOS and PHN) can be considered safe and effective treatment options for two-part fractures of the proximal humerus. Operative treatment may result in better range of motion and reduced pain in the early postoperative course of treatment.

PMID: 23820852 [PubMed - indexed for MEDLINE]
Publish or perish; but what, when, and how?

Helfet DL, Hanson BP, De Faoite D.

PMID: 24078962 [PubMed - indexed for MEDLINE]
Frequency, distribution and severity of prevalent osteoporotic vertebral fractures in postmenopausal women.

Kilincer C, Kabayel DD, Cagli B, Unlu E, Wicki B, Ozdemir F.

Abstract

AIM:

Assessment of previous vertebral fractures provides useful information to predict future fracture risk. This study aimed to determine the frequency, distribution and severity of prevalent osteoporotic vertebral fractures in postmenopausal women.

MATERIAL AND METHODS:

Data on patient characteristics, bone densitometry values, and spine radiographs (T2-L5) were reviewed in 232 postmenopausal women admitted to our osteoporosis clinic.

RESULTS:

Prevalent vertebral fractures were detected in 28 (12.1%) women (95%CI: 7.8 16.3). Fifteen women (6.5%) had mild fractures and 13 (5.6%) had moderate or severe fractures according to Genant's semi-quantitative technique. The T-score was associated with the presence of prevalent vertebral fractures (OR= 0.61; 95%CI: 0.38-0.96, P= 0.034). The most frequently fractured vertebrae were T11 and T12, followed by T7 and T9. Sixty percent of fractures were wedge-type while 40% were biconcave. The frequency of wedge-type fractures at the T11-T12 levels (93.8%) was higher compared to that at all other levels (44.1%) (P= 0.001).

CONCLUSION:

We determined the frequency, distribution, and severity of prevalent fractures and identified certain distribution patterns of fracture locations and types. To verify our results and detect possible predictive factors for fracture risk, population-based larger trials are needed.

PMID: 24101267 [PubMed - indexed for MEDLINE]
Focussed classification of scapula fractures: failure of the lateral scapula suspension system.

Lambert S, Kellam JF, Jaeger M, Madsen JE, Babst R, Andermahr J, Li W, Audigé L.

Abstract

INTRODUCTION:

Following an increase in the incidence of scapular fractures and interest in the outcome of their treatment, a basic classification system was developed for ease of use in the emergency setting. It has been expanded to a comprehensive system to allow for more in-depth classification of scapular fractures for clinical research and surgical decision making. It focusses on three specific regions of the scapula: the scapular body, the glenoid fossa and the lateral scapular suspension system (LSSS). This article presents a classification of the LSSS involvement to better characterise the injuries of this region and to emphasise its relevance to evaluation of the position of the scapula, hence the glenoid fossa, and so the centre of rotation of the shoulder joint.

METHODS:

An iterative consensus and evaluation process comprising an international group of seven experienced shoulder specialist and orthopaedic trauma surgeons was used to specify and evaluate the failure of the LSSS associated with scapula fractures. This was supported by a series of agreement studies. The system considered lack of involvement (S0), incomplete (S1) and complete (S2) failure of the LSSS. The last evaluation was conducted on a consecutive collection of 120 scapula fractures documented by three-dimensional computed tomography (3D CT) reconstruction videos.

RESULTS:

Surgeons agreed on the involvement/failure of the LSSS in 47% of the 120 cases with an overall Kappa of 0.54. The sample most likely included 70 S0, 29 S1 and 21 S2 cases, where surgeons showed median classification accuracies of 93%, 71% and 80% for these categories, respectively. While two surgeons showed some uncertainty about their classification, the remaining surgeons only failed to identify LSSS failure in <20% of the cases. Kappa coefficients of reliability for classification of incomplete and complete LSSS involvement according to subcategories were 0.85 and 0.82, respectively.

CONCLUSION:

While LSSS involvement can be reliably identified, its characterisation regarding complexity is problematic even with 3D CT images. The proposed LSSS system is considered clinically relevant and sufficient to further assess its role in treatment-decision processes and outcome prognosis.

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KEYWORDS:

Accuracy; Diagnostic; Fracture classification; Lateral scapular suspension system; Reliability; Scapula fracture

PMID: 23570705 [PubMed - in process]
The grading model for the assessment of the total amount of epidural fibrosis in postoperative lumbar spine.

Lubina ZI, Baranovic S, Karlak I, Novacic K, Potocki-Karacic T, Lovrić D.

Abstract

PURPOSE:

To present a new model derived from Ross's model for the assessment of the total amount of epidural fibrosis and to present inter- and intravariability study.

METHODS:

Two readers blinded to each other and blinded to their first and second reading retrospectively evaluated the magnetic resonance examinations in 32 postoperative spine surgery patients using this model.

RESULTS:

Paired and unpaired two-sided t tests showed no significant difference between the first and second reading, and interclass correlation coefficient revealed good interobserver reliability.

CONCLUSION:

The proposed model enables estimation of the amount of epidural fibrosis in postoperative lumbar spine and does not require any additional software or hardware. It is designed for multi-centered clinical studies where it is necessary to compare the values of epidural fibrosis between the tested and control group. The use of the proposed model is fast and practical and helps to avoid complications arising from image format, calibration and software, which are often encountered in multi-centered studies.

PMID: 23064807 [PubMed - indexed for MEDLINE] PMCID: PMC3631047
Tibiotalocalcaneal fusion using the hindfoot arthrodesis nail: a multicenter study.


Abstract

**BACKGROUND:**

Tibiotalocalcaneal arthrodesis is a salvage option for severe ankle and hindfoot deformities, arthritis of the ankle and subtalar joints, avascular necrosis of the talus, failed total ankle arthroplasty, and Charcot arthropathy. This multicenter study reports clinical experience with the hindfoot arthrodesis nail (HAN) in the treatment of patients with severe ankle and foot abnormalities.

**METHODS:**

Seven participating clinics from Europe and North America recruited 38 patients who underwent ankle/subtalar arthrodesis using retrograde nailing with the HAN. Information was collected regarding technical details, complications, and functional and quality of life outcomes (Short Form-36 [SF-36], American Academy of Orthopaedic Surgeons-Foot and Ankle Outcomes [AAOS-FAO], and numeric rating scale [NRS] for pain) after an average of 2 years of follow-up.

**RESULTS:**

The rate of superficial wound infection was 2.4%. No deep soft tissue or bone infections were reported. The overall union rate was 84%. At the time of follow-up, low pain levels were reported, with a mean NRS of 2.2; the mean AAOS-FAO score was 38; and the SF-36 mean physical and mental health component scores were 41.2 and 52.5, respectively. All 13 patients who were unable to work prior to surgery were able to fully return to work.

**CONCLUSIONS:**

The HAN offered a safe and reliable salvage option for tibiotalocalcaneal arthrodesis in patients with severe ankle and hindfoot disease. It achieved acceptable functional outcome and low complication rates despite the challenging patient cohort. A considerable socioeconomic benefit appeared to result based on the high proportion of patients who were able to return to work postoperatively.

**LEVEL OF EVIDENCE:** Level IV, retrospective case series.

**KEYWORDS:**

hindfoot arthrodesis nail; intramedullary fixation; multicenter clinical study; retrograde nailing; tibiotalocalcaneal fusion

PMID: 23613330 [PubMed - indexed for MEDLINE]
AO spine injury classification system: a revision proposal for the thoracic and lumbar spine.

Reinhold M, Audigé L, Schnake KJ, Bellabarba C, Dai LY, Oner FC.

Abstract

PURPOSE:
The AO Spine Classification Group was established to propose a revised AO spine injury classification system. This paper provides details on the rationale, methodology, and results of the initial stage of the revision process for injuries of the thoracic and lumbar (TL) spine.

METHODS:
In a structured, iterative process involving five experienced spine trauma surgeons from various parts of the world, consecutive cases with TL injuries were classified independently by members of the classification group, and analyzed for classification reliability using the Kappa coefficient (κ) and for accuracy using latent class analysis. The reasons for disagreements were examined systematically during review meetings. In four successive sessions, the system was revised until consensus and sufficient reproducibility were achieved.

RESULTS:
The TL spine injury system is based on three main injury categories adapted from the original Magerl AO concept: A (compression), B (tension band), and C (displacement) type injuries. Type-A injuries include four subtypes (wedge-impaction/split-pincer/incomplete burst/complete burst); B-type injuries are divided between purely osseous and osseo-ligamentous disruptions; and C-type injuries are further categorized into three subtypes (hyperextension/translation/separation). There is no subgroup division. The reliability of injury types (A, B, C) was good (κ = 0.77). The surgeons’ pairwise Kappa ranged from 0.69 to 0.90. Kappa coefficients κ for reliability of injury subtypes ranged from 0.26 to 0.78.

CONCLUSIONS:
The proposed TL spine injury system is based on clinically relevant parameters. Final evaluation data showed reasonable reliability and accuracy. Further validation of the proposed revised AO Classification requires follow-up evaluation sessions and documentation by more surgeons from different countries and backgrounds and is subject to modification based on clinical parameters during subsequent phases.

A discussion of an accurate maxillary superior repositioning technique without intraoperative measurement in bimaxillary orthognathic surgery.

Righesso LA, Wicki B, Heitz C.

PMID: 23313285 [PubMed - indexed for MEDLINE]

Satoh M, Masuhara K, Goldhahn S, Kawaguchi T.

PMID: 23376014 [PubMed - indexed for MEDLINE]


[Article not listed on PubMed].
TEFTOM: A Promising General Trauma Expectation/Outcome Measure—Results of a Validation Study on Pan-American Ankle and Distal Tibia Trauma Patients.

Suk M, Daigl M, Buckley RE, Paccola CAJ, Lorich DG, Helfet DL, Hanson B.

Abstract

BACKGROUND:

In orthopedics, there is no instrument specifically designed to assess patients’ expectations of their final surgery outcome in general trauma populations. We developed the Trauma Expectation Factor Trauma Outcome Measure (TEFTOM) to investigate the fulfilment of patients’ expectations one year after surgery as a measure of general trauma surgical outcomes. The aim of this paper was to assess the psychometric characteristics of this new general trauma outcome measure.

METHODS:

The questionnaire was tested in 201 ankle and distal tibia fracture patients scheduled for surgery. Patients were followed up for twelve months. The TEFTOM questionnaire was evaluated for its criterion validity, internal consistency, reproducibility, and responsiveness. Results. TOM showed good criterion validity against the American Academy of Orthopaedic Surgeons Foot and Ankle Scale (Pearson’s correlation coefficient = 0.69–0.77). Internal consistency was acceptable for TEF (Cronbach’s alpha = 0.65–0.76) and excellent for TOM (Cronbach’s alpha = 0.76–0.85). Reproducibility was moderate to very good (intraclass correlation coefficient (ICC) ≥ 0.67) for TEF and very good (ICC ≥ 0.92) for TOM. TOM also proved to be responsive to changes in patients’ condition over time (Wald test; $P < 0.001$).

CONCLUSIONS:

TEFTOM is a promising tool for measuring general trauma outcomes in terms of patients’ expectation fulfilment that proved to be valid, internally consistent, reproducible, and responsive to change.

[Article not listed on PubMed]

Tetreault LA, Kopjar B, Vaccaro A, Yoon ST, Arnold PM, Massicotte EM, Fehlings MG.

Abstract

BACKGROUND:

Cervical spondylotic myelopathy is a progressive spine disease and the most common cause of spinal cord dysfunction worldwide. The objective of this study was to develop a prediction model, based on data from a prospective multi-center study, relating a combination of clinical and imaging variables to surgical outcome in patients with cervical spondylotic myelopathy.

METHODS:

Two hundred and seventy-eight patients diagnosed with cervical spondylotic myelopathy treated surgically were enrolled at twelve different sites in the multi-center AOSpine North America study. Univariate analyses were performed to evaluate the relationship between outcome, assessed with the modified Japanese Orthopaedic Association (mJOA) score, and various clinical and imaging predictors. A set of important candidate variables for the final model was selected on the basis of author consensus, literature support, and statistical findings. Logistic regression was used to formulate the final model.

RESULTS:

Univariate analyses demonstrated that the odds of a successful outcome decreased with a longer duration of symptoms (odds ratio [OR] = 0.80, 95% confidence interval [CI] = 0.65 to 0.98, p = 0.030); a lower baseline mJOA score (OR = 0.74, 95% CI = 0.65 to 0.84, p < 0.0001); the presence of psychological comorbidities (OR = 0.51, 95% CI = 0.29 to 0.92, p = 0.024); the presence of broad-based, unstable gait (OR = 2.72, 95% CI = 1.47 to 5.06, p = 0.0018) or other gait impairment (OR = 3.56, 95% CI = 1.75 to 7.22, p = 0.0005); and older age (OR = 0.96, 95% CI = 0.93 to 0.98, p = 0.0004). The dependent variable, the mJOA score at one year, was dichotomized for logistic regression; a "successful" outcome was defined as a final score of ≥16 and a "failed" outcome was a score of <16. The final model included age (OR = 0.97, 95% CI = 0.94 to 0.99, p = 0.0017), duration of symptoms (OR = 0.78, 95% CI = 0.61 to 0.997, p = 0.048), smoking status (OR = 0.46, 95% CI = 0.21 to 0.98, p = 0.043), impairment of gait (OR = 2.66, 95% CI = 1.17 to 6.06, p = 0.020), psychological comorbidities (OR = 0.33, 95% CI = 0.15 to 0.69, p = 0.0035), baseline mJOA score (OR = 1.22, 95% CI = 1.05 to 1.41, p = 0.0084), and baseline transverse area of the cord on magnetic resonance imaging (OR = 1.02, 95% CI = 0.99 to 1.05, p = 0.19). The area under the receiver operator characteristic curve was 0.79, indicating good model prediction.

CONCLUSIONS:

On the basis of the results of the AOSpine North America study, we identified a list of the most important predictors of surgical outcome for cervical spondylotic myelopathy.

PMID: 24048553 [PubMed - indexed for MEDLINE]
Functional and quality-of-life outcomes in geriatric patients with type-II dens fracture.


Abstract

BACKGROUND:

Dens fractures are relatively common in the elderly. The treatment of Type-II dens fractures remains controversial. The aim of this multicenter prospective cohort study was to compare outcomes (assessed with use of validated clinical measures) and complications of nonsurgical and surgical treatment of Type-II dens fractures in patients sixty-five years of age or older.

METHODS:

One hundred and fifty-nine patients with a Type-II dens fracture were enrolled in a multicenter prospective study. Subjects were treated either surgically (n = 101) or nonsurgically (n = 58) as determined by the treatment preferences of the treating physicians and the patients. The subjects were followed at six and twelve months with validated outcome measures, including the Neck Disability Index (NDI) and Short Form-36v2 (SF-36v2). Treatment complications were prospectively recorded. Statistical analysis was performed to compare outcome measures before and after adjustment for confounding variables.

RESULTS:

The two groups were similar with regard to baseline characteristics. The most common surgical treatment was posterior C1-C2 arthrodesis (eighty of 101, or 79%) while the most common nonsurgical treatment was immobilization with use of a hard collar (forty-seven of fifty-eight, or 81%). The overall mortality rate was 18% over the twelve-month follow-up period. At twelve months, the NDI had increased (worsened) by 14.7 points in the nonsurgical cohort (p < 0.0001) compared with a nonsignificant increase (worsening) of 5.7 points in the surgical group (p = 0.0555). The surgical group had significantly better outcomes as measured by the NDI and SF-36v2 Bodily Pain dimension compared with the nonsurgical group, and these differences persisted after adjustment. There was no difference in the overall rate of complications, but the surgical group had a significantly lower rate of nonunion (5% versus 21% in the nonsurgical group; p = 0.0033). Mortality was higher in the nonsurgical group compared with the surgical group (annual mortality rates of 26% and 14%, respectively; p = 0.059).

CONCLUSIONS:

We demonstrated a significant benefit with surgical treatment of dens fractures as measured by the NDI, a disease-specific functional outcome measure. As a result of the nonrandomized nature of the study, the results are vulnerable to the effects of possible residual confounding. We recommend that elderly patients with a Type-II dens fracture who are healthy enough for general anesthesia be considered for surgical stabilization to improve functional outcome as well as the union and fusion rates.

PMID: 23595072 [PubMed - indexed for MEDLINE]
Non peer-reviewed publications

2013
De Faoite D, Ernstberger A, Nerlich M, Kiss M, Hanson B. 
Driver obesity and the risk of fatal injury during traffic collisions - the view from Europe. 
*Emergency Medicine Journal / Comment Section.*

De Faoite D. 
From the AO Institutes: AOCID. 

De Faoite D. 
AO Clinical Study Center program 
*AO Dialogue*; 1/13. 6-7.

De Faoite D. 
AO Clinical Investigation and Documentation update. 

De Faoite D. 
AOCID – The first 15 years 

Newton C, De Faoite D, Zeppetzauer M. 
Focused Registries. 
*AO TK System Innovations*; 1/13. 62–64.
Podium presentations

2013


Nouri A., Tetreault L., Zamarono J.J., Dalzell K., Fehlings M.
Quantitative analysis of MRI signal change in patients with Cervical Spondylotic Myelopathy: Results from the Prospective, Multicenter North American Study.

Tetreault L., Arnold P., Kopjar B., Fehlings M.
A Clinical Prediction Model to Assess Surgical Outcome in Patients with Cervical Spondylotic Myelopathy: Internal and External Validation using the Prospective Multicenter North American and International Datasets in 764 Patients.

Congress of Infection in trauma surgery: The problem and the solutions, Milan, Italy, November 9, 2013
Hanson B.
Evidence based medicine in the prevention and treatment of infection in trauma surgery

Deutscher Kongress für Orthopädie und Unfallchirurgie (DKOU), Berlin, Germany, October 22-25, 2013
Joeris A., Hanson B., Suk M., De Faoite D., Helfet D.
How user-friendly and valid are outcomes measures and instruments for the lower extremity?


Association of Myelopathy Scores with Cervical Sagittal Balance and Normalized Spinal Cord Volume: Analysis of 56 Preoperative Cases from the North America Myelopathy Study

4th World Congress of Pediatric Surgery, Berlin, Germany, October 13-16, 2013
Joeris A.
AO Trauma Frühstückssymposium: Documentation on “www” and sharing experience worldwide (AO-COIAC)

Joeris A., Lutz N., Slongo T., Audigé L.
Epidemiology of pediatric long bone fractures.

54. Kongress der Deutschen Gesellschaft für Handchirurgie (DGH), Düsseldorf, Germany, October 10-12, 2013
De Faoite D., Hanson B., Suk M., Helfet D.L.
Wie gut sind Hand & Handgelenk Outcome Scores?
Comparison of Outcomes Between Anterior and Posterior Cervical Procedures: Results from the AOSpine North America Cervical Spondylotic Myelopathy (CSM)

A Clinical Prediction Rule to Determine Outcomes in Patients with Cervical Spondylotic Myelopathy undergoing Surgical Treatment: Data from the Prospective, Multicentre AOSpine North America CSM Study.

International Variations in the Clinical Presentation and Management of Cervical Spondylotic Myelopathy. One Year Outcomes of the AOSpine Multicenter Prospective CSM-I Study.

Laminoplasty vs Laminectomy and Fusion to Treat Cervical Spondylotic Myelopathy: Outcomes of the Prospective Multicenter AOSpine International CSM Study.


International Society of Orthopaedic Surgery and Traumatology World Congress (SICOT), Hyderabad, India, October 17-19, 2013
Helfet D, Hanson B, De Faoite D.
The Role of Documentation in Disaster Management.

The Effect of Surgery on Health Related Quality of Life and Functional Outcome in Patients with Metastatic Epidural Spinal Cord Compression – the AOSpine North America Prospective Multicenter Study.

Annual Meeting of the American Society for Surgery of the Hand (ASSH), San Francisco, USA, October 3–10, 2013
Jupiter J, Steinfelder N, Rikli D.
Does osteoporosis increase the risk of mechanical failure after locking plate fixation of distal radius fractures?

The Effect of Surgery on Health Related Quality of Life and Functional Outcome in Patients with Metastatic Epidural Spinal Cord Compression -- the AOSpine North America Prospective Multicenter Study.

Prospective, Multicenter Assessment of Acute Neurologic Complications Following Complex Adult Spinal Deformity Surgery: The Scoli-Risk-1 Trial

*winner of the Russell A. Hibbs Clinical Award

Deutsche Gesellschaft für Medizinische Informatik, Biometrie und Epidemiologie (GMDS), Jahrestagung, Lübeck, Germany, Sept 01-05, 2013
D De Faoite, B Hanson, M Nerlich, A Ernstberger, M Kiss
Medical documentation at the interface between clinical research and industry: cooperation between the Audi Accident Research Unit and AO Clinical Investigation and Documentation.

SPUDM24 Subjective probability, utility and decision making Conference, Barcelona, Spain, Aug 18-22, 2013
Garcia-Retamero R, Cokely E T, Wicki B, Hanson B.
Numeracy and shared decision making between doctors and their patients

Fehlings M, Kopjar B, Grossman R.

International Variations in the Clinical Presentation and Management of Cervical Spondylotic Myelopathy. One Year Outcomes of the AOSpine Multicenter Prospective CSM-I Study.

Whitecloud Basic Science Award Nominee

Laminoplasty vs Laminectomy and Fusion to Treat Cervical Spondylotic Myelopathy: Outcomes of the Prospective Multicenter AOSpine International CSM Study.

Whitecloud Clinical Award for Best Clinical Paper Nominee

Federation of European Societies for Surgery of the Hand (FESSH), 17th FESSH Congress, Antalya, Turkey, May 29 – June 01, 2013
Rikli D, Steinfeldter N, Hanson B.
Does osteoporosis increase the risk of mechanical failure after locking plate fixation of distal radius fractures?

Urrutia S, Sotelo P, Ide P, Mandiola R, Monge S, Sebastian
Retrograde locked intramedullary nail for acute humeral shaft fractures in patients subject to sick-leave compensation

American Society of Clinical Oncology (ASCO), Annual Meeting, Chicago, Illinois, USA, May 31- June 4 2013
Attom: Long-term effects of continuing adjuvant tamoxifen to 10 years versus stopping at 5 years in 6934 women with early breast cancer

Global Spine Congress, Hong Kong, Hong Kong, April 04-06, 2013
A Clinical Prediction Rule to Determine Outcomes in Patients with Cervical Spondylotic Myelopathy undergoing Surgical Treatment: Data from the Prospective, Multicentre AOspine CSM Study
Presented best paper!

American Association of Neurological Surgeons (AANS/CNS) Joint Section, 29th Annual Meeting, Phoenix, Arizona, March 06-09, 2013
The Effect of Surgery on Health Related Quality of Life and Functional Outcome in Patients with Metastatic Epidural Spinal Cord Compression -- the AOspine North America Prospective Multicenter Study.

13th Annual Scientific Conference of the Canadian Spine Society, Quebec, Canada, February 27 – March 02, 2013
Lindsay A Tetreault, Michael Fehlings, Branko Kopjar, Sangwook Tim Yoon, Paul Arnold, Eric M Massicotte, Alexander Vaccaro.
A Clinical Prediction Rule to Determine Outcomes in Patients with Cervical Spondylotic Myelopathy undergoing Surgical Treatment: Data from the Prospective, Multicentre AOspine North America CSM Study.
Scientific poster presentations

2013
Kopjar B, Fehlings M.
Rationale, design and early trial performance of AOSpine North America multi-center double blind randomized controlled trial of safety and efficacy of riluzole in CSM (CSM – Protect Trial).
International Variations in the Presentation, Management and Treatment Outcomes of Cervical Spondylotic Myelopathy: Two Year Outcomes of the CSM-I study in 484 Subjects.

Annual Meeting of the Society for Judgment and Decision Making (SJDM), Toronto, Canada, November 15-18, 2013
Garcia-Retamero R, Wicki B, Cokely E T, Hanson B.
Do physicians want to share decision making with their patients?

21st International Conference on Oral and Maxillofacial Surgery (ICOMS), Barcelona, Spain, October 21-24, 2013
Righesso L, Hanson B, Heitz C, De Oliveira R.
The Evidence base for oral & maxillofacial surgery – a survey of Cochrane systematic reviews

Kopjar B, Fehlings M.
Rationale, design and early trial performance of AOSpine North America multi-center double blind randomized controlled trial of safety and efficacy of riluzole in CSM (CSM – Protect Trial).
The Clinical Translation of Riluzole for the Treatment of Traumatic Spinal Cord Injury: Design of a Phase II/III Trial.

International Society of Orthopaedic Surgery and Traumatology World Congress (SICOT), Hyderabad, India, October 17-19, 2013
De Faoite D, Hanson B.
The use of outcome measurements in international multicenter trials – a review of the multicultural issues which arise.

90. Jahrestagung der Vereinigung der Bayerischen Chirurgen e.V., Altötting, Germany, 24-26 July, 2013
D De Faoite, B Hanson, M Nerlich, A Ernstberger, M Kiss
Medizinische Dokumentation an der Schnittstelle zwischen klinischer Forschung und Industrie

A Clinical Prediction Rule to Determine Outcomes in Patients with Cervical Spondylotic Myelopathy undergoing Surgical Treatment: Data from the Prospective, Multicentre AOSpine North America CSM Study.

Kopjar B, Fehlings M.
Rationale, design and early trial performance of AOSpine North America multi-center double blind randomized controlled trial of safety and efficacy of riluzole in CSM (CSM – Protect Trial).

American Association of Neurological Surgeons (AANS), Annual Scientific Meeting, New Orleans LA, USA, April 27- May 01, 2013
The Effect of Surgery on Health Related Quality of Life and Functional Outcome in Patients with Metastatic Epidural Spinal Cord Compression -- the AOSpine North America Prospective Multicenter Study.

International Variations in the Clinical Presentation and Management of Cervical Spondylotic Myelopathy. One Year Outcomes of the AOSpine Multicenter Prospective CSM-I Study.

Global Spine Congress, Hong Kong, Hong Kong, April 04-06, 2013
Laminoplasty vs Laminectomy and Fusion to Treat Cervical Spondylotic Myelopathy: Outcomes of the Prospective Multicenter AOSpine International CSM Study

International Variations in the Clinical Presentation and Management of Cervical Spondylotic Myelopathy. One Year Outcomes of the AOSpine Multicenter Prospective CSM-I Study

Fehlings M, Ranganathan A, Vaccaro A, Arnold P, Kopjar B.
Predictors of Treatment Outcomes in Geriatric Patients with Odontoid Fractures - AO Spine North America Multi-centre Prospective Study GOF.

The Effect of Surgery on Health Related Quality of Life and Functional Outcome in Patients with Metastatic Epidural Spinal Cord Compression -- the AOSpine North America Prospective Multicenter Study.

Fehlings M, Kopjar B.
Improving outcomes of surgical treatment for cervical spondylotic myelopathy. Rationale and design of AOSpine North America multi-center double blind randomized controlled trial of safety and efficacy of riluzole in CSM (CSM – Protect Trial)

ZHOU Q, PU X, LU M, DAI F, HE Q, ZHANG J, LUO F, LU H. [Abstract- Accepted as E-Poster (Submitted by Dr. Qiang Zhou]
One-stage posterior debridement, interbody graft, rectification and fixation for thoracolumbar tuberculosis.

ISASS13, Vancouver, BC, Canada, April 3 - 5, 2013
ZHOU Q, PU X , LU M, DAI F, HE Q, ZHANG J, LUO F, LU H.
One-stage posterior debridement, interbody graft, rectification and fixation for thoracolumbar tuberculosis.
Hanson B, Suk M, Redies M, De Faoite D.
Creation of an introductory eLearning module on EBM/conducting clinical research for orthopedic and trauma surgeons (Poster)

Matityahu A, Kahler D, Krettek C, Stöckle U, Messmer P, Ljungqvist J, Gebhard F.
Sacroiliac Screw Placement in Dysmorphic Sacrum is More Accurate with 3D Navigation than 2D or Fluoroscopy.

American Association of Neurological Surgeons (AANS/CNS) Joint Section, 29th Annual Meeting, Phoenix, Arizona, March 06-09, 2013
Laminoplasty vs Laminectomy and Fusion to Treat Cervical Spondylotic Myelopathy: Outcomes of the Prospective Multicenter AOspine International CSM Study

A Clinical Prediction Rule to Determine Outcomes in Patients with Cervical Spondylotic Myelopathy undergoing Surgical Treatment: Data from the Prospective, Multicentre AOspine CSM Study

Fehlings M, Kopjar B.
Improving outcomes of surgical treatment for cervical spondylotic myelopathy. Rationale and design of AOSpine North America multi-center double blind randomized controlled trial of safety and efficacy of riluzole in CSM (CSM – Protect Trial)