

Rheumatology

Evidence Update

December 2017 (Quarterly)

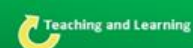


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Training Sessions 2017/18

All sessions are one hour

January (13.00-14.00)

4th (Thu)	Statistics
8th (Mon)	Literature Searching
18th (Thu)	Critical Appraisal
24th (Wed)	Statistics

February (12.00-13.00)

1 st (Thu)	Literature Searching
9 th (Fri)	Critical Appraisal
12 th (Mon)	Statistics
20 th (Tue)	Literature Searching
28 th (Wed)	Critical Appraisal



Your Outreach Librarian – Jo Hooper

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Literature searching: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one-to-one session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence. Please email requests to library@uhbristol.nhs.uk

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Updates

NICE National Institute for
Health and Care Excellence

[Promonitor for monitoring response to biologics in rheumatoid arthritis - medtech innovation briefing \(MIB126\)](#)

Source: [National Institute for Health and Care Excellence - NICE](#) - 27 October 2017 [Read Summary](#)

[Certolizumab pegol and secukinumab for treating active psoriatic arthritis following inadequate response to disease-modifying antirheumatic drugs: a systematic review and economic evaluation](#)

04 October 2017 - Publisher: National Institute for Health Research [Read Summary](#)

[Phase III randomized study of adalimumab biosimilar SB5 versus reference adalimumab in patients with moderate-to-severe rheumatoid arthritis](#)

21 November 2017 - Publisher: Arthritis & Rheumatology



[Neuromuscular electrical stimulation \(NMES\) for patellofemoral pain syndrome](#)

Online Publication Date: December 2017

[Triage tools for detecting cervical spine injury in pediatric trauma patients](#)

Online Publication Date: December 2017

[Bisphosphonates for Paget's disease of bone in adults](#)

Online Publication Date: December 2017

[Tourniquet use for knee replacement surgery](#)

Online Publication Date: November 2017

[Shoulder replacement surgery for osteoarthritis and rotator cuff tear arthropathy](#)

Online Publication Date: November 2017

[Weight loss for overweight patients with knee or hip osteoarthritis](#)

Online Publication Date: November 2017

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[What's new in rheumatology](#)

Literature review current through: Nov 2017. | **This topic last updated:** Dec 13, 2017.

[Clinical manifestations and diagnosis of osteoarthritis](#)

Literature review current through: Nov 2017. | **This topic last updated:** Oct 30, 2017.

[Overview of the systemic and nonarticular manifestations of rheumatoid arthritis](#)

Literature review current through: Nov 2017. | This topic last updated: Oct 28, 2016.

[Clinical manifestations of rheumatoid arthritis](#)

Literature review current through: Nov 2017. | This topic last updated: Oct 12, 2017.



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Recent Database Articles

Below is a selection of articles recently added to the healthcare databases.

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Biologic Therapies

Real-world health-related quality of life EQ-5D-5L outcomes in ankylosing spondylitis (AS): Analysis of data from the uk british society for rheumatology register in ankylosing spondylitis (BSRBR-AS) study

Author(s): Neilson A.R.; McNamee P.; Jones G.; Macfarlane G.; Pathan E.

Source: Value in Health; 2017; vol. 20 (no. 9)

Publication Type(s): Conference Abstract

Abstract:Background: Economic models developed to inform healthcare reimbursement decisions in Ankylosing Spondylitis (AS) are often based on mapping algorithms linking Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and Bath Ankylosing Spondylitis Index (BASFI) scores to indirectly estimate measures such as the EQ-5D, to enable calculation of quality adjusted life years (QALYs). Objectives: To generate HRQoL profiles using direct real world data to facilitate the development of economic models to assess the cost-effectiveness of biologic versus non-biologic therapy in AS. Methods: EQ-5D-5L data were drawn from patients included in the UK-wide prospective observational cohort study - the British Society for Rheumatology Register in Ankylosing Spondylitis (BSRBR-AS) study during the period Dec 2012-Nov 2016. The study sample comprised 688 biologic (mean age 44.4(13.3) years; 69% male) and 1582 non-biologic patients (mean age 50.1(14.6) years, 69% male). We constructed EQ-5D-5L scores and confidence intervals for AS patients reporting levels 1 (no problems) and 2 to 5 (problems) on the EQ-5D-5L descriptive system, stratified by BASDAI and BASFI for various AS health state profiles. Results: Pooled baseline and follow-up EQ-5D-5L data were available for 1987 patients (4384 observations). BASDAI, BASFI, and the EQ-5D-5L spanned the entire severity of feasible disease states. Utility values ranged from 0.7466 for BASDAI scores > 2-4 (95% CI 0.7343-0.7590) and 0.4439 for BASDAI scores > 8-10 (95% CI 0.4106-0.4771); and ranged from 0.7491 (95% CI 0.7356-0.7627) and 0.4520 (95% CI 0.4282-0.4758) for BASFI scores > 2-4, > 8-10 respectively. Conclusions: The EQ-5D-5L was able to discriminate between different levels of disease severity. This study captures real-world EQ-5D-5L values for patients with AS. The EQ-5D-5L values reported here are the first set of estimates from AS patients in routine clinical settings, and they provide a platform to enable calculation of alternative AS mapping algorithms in the future.

Impact of low adherence on cost-effectiveness of the biological treatment of psoriasis (PSO) and psoriatic arthritis (PSA) in Slovenia

Author(s): Hren R.; Milanic M.

Source: Value in Health; 2017; vol. 20 (no. 9)

Publication Type(s): Conference Abstract

Abstract:Objectives: To evaluate the impact of low adherence in patients with psoriasis (PsO) and psoriatic arthritis (PsA) treated with biological therapy (adalimumab) in Slovenia. Methods: Flexible

Markov state transition cohort models were adapted using locally-specific data separately for each indication taking into account the complexity of treatment pathways in PsO and PsA. Health states within both models were assessed either on the basis of Psoriasis Area Severity Index for PsO or Psoriatic Arthritis Response Criteria and Health Assessment Questionnaire for PsA. Adalimumab was compared with best supportive care (BSC) following the design of clinical trials and requirement that the cost-effectiveness of adalimumab is appraised in a conservative manner. Results: In patients suffering from PsO, the treatment with adalimumab when compared to BSC resulted in ICER of 11.005 per QALY for full (100%) adherence, and 62.711 per QALY for real-life (50%) adherence. In patients suffering from PsA resulting ICER was 16.313 per QALY for full (100%) adherence and 37.865 per QALY for real-life (50%) adherence. Even the adherence that is often deemed satisfactory (75%) had pronounced effect on cost-effectiveness of treatment with adalimumab when compared to BSC (ICER of 33.954 per QALY for PsO and 26.948 per QALY for PsA). The sensitivity analysis showed robustness of findings in both groups of patients. Conclusions: Our pharmacoeconomic analysis indicates that cost-effectiveness is markedly altered by low adherence to the treatment with adalimumab in patients suffering from PsO and PsA. The findings of our study have potential implications for introduction of adherence-enhancing interventions.

Herpes Zoster as a Risk Factor for Incident Giant Cell Arteritis.

Author(s): England, Bryant R.; Mikuls, Ted R.; Xie, Fenglong; Yang, Shuo; Chen, Lang; Curtis, Jeffrey R.

Source: Arthritis & Rheumatology; Dec 2017; vol. 69 (no. 12); p. 2351-2358

Publication Type(s): Academic Journal

Abstract: Objective Histopathologic studies have implicated herpes zoster (HZ) as a causative organism of giant cell arteritis (GCA). The purpose of this study was to assess the epidemiologic association of HZ events with incident GCA. Methods We performed a retrospective cohort study in 2 large independent US administrative data sets: Medicare 5% and Truven Health Analytics MarketScan. Eligible subjects had 12 months of continuous coverage, were >50 years old, and had no history of GCA or polymyalgia rheumatica. HZ events (complicated and uncomplicated) and GCA were identified by the presence of International Classification of Diseases, Ninth Revision, Clinical Modification codes from physician visit or hospital discharge records. Antiviral therapies and vaccinations were identified from prescription claims and drug codes. Risk of incident GCA was calculated using multivariable Cox proportional hazards regression. Results Among 16,686,345 subjects, a total of 5,942 GCA cases occurred, with 3.1% (MarketScan) and 6.0% (Medicare) having preceding HZ events. Unadjusted GCA incidence rates were highest in the groups with complicated and uncomplicated HZ. After multivariable adjustment, complicated HZ was associated with an increased risk of GCA (hazard ratio [HR] 1.99 [95% confidence interval (95% CI) 1.32-3.02] in the Medicare cohort and 2.16 [95% CI 1.46-3.18] in the MarketScan cohort), as was uncomplicated HZ (HR 1.42 [95% CI 1.02-1.99] and HR 1.45 [95% CI 1.05-2.01] in the respective cohorts). Vaccination and antiviral treatment were not consistently associated with GCA risk, although antiviral treatment was marginally associated with a decreased risk of GCA in the Medicare cohort (HR 0.67 [95% CI 0.46-0.99]). Conclusion HZ is associated with an increased risk of GCA. The infrequency of HZ in GCA patients suggests that it is only one potential trigger for GCA. Antivirals and vaccination did not consistently mitigate this risk.

Co-Occurrence and Characteristics of Patients With Axial Spondyloarthritis Who Meet Criteria for Fibromyalgia: Results From a UK National Register

Author(s): Macfarlane G.J.; Barnish M.S.; Martin K.R.; Jones G.T.; Pathan E.; Haywood K.L.; Siebert S.

Source: Arthritis and Rheumatology; Nov 2017; vol. 69 (no. 11); p. 2144-2150

Publication Type(s): Article

Abstract:Objective: To estimate the proportion of patients with axial spondyloarthritis (SpA) in a UK national biologics registry who met criteria for fibromyalgia (FM), and to delineate the characteristics of these patients. Methods: Two cohorts of patients are prospectively recruited from across 83 centers in the UK for the British Society for Rheumatology Biologics Register in Ankylosing Spondylitis (BSRBR-AS). All patients are required to meet Assessment of SpondyloArthritis international Society (ASAS) criteria for axial SpA. Patients are either newly starting biologic therapy (biologics cohort) or are naive to treatment with biologic agents (non-biologics cohort) at the time of recruitment, and all patients are followed up prospectively. At recruitment and follow-up, clinical information and measurements are recorded while patients complete the 2011 research criteria for FM and assessments of the level of disease activity and work impact. Results: Of the patients registered in the BSRBR-AS, 1,504 (68% male) were eligible for the current analysis, of whom 311 (20.7%) met the 2011 research criteria for FM. Prevalence of FM was similar between patients who fulfilled the modified New York criteria for AS (19.7%) and those who fulfilled ASAS imaging criteria but not the modified New York criteria (25.2%); however, among those who fulfilled only the ASAS clinical criteria, the prevalence of FM was lower (9.5%). Patients who met FM criteria reported significantly worse disease activity, function, global severity scores, and quality of life, and were more likely to have moderate or severe levels of mood disorder and clinically important fatigue. Patients who met FM criteria reported experiencing work impairment around half their working time. Meeting FM criteria was not related to elevated C-reactive protein levels or most extraspinal manifestations, but was associated with a higher likelihood of having received biologic therapy. Conclusion: Developing management approaches that would address the significant unmet clinical needs of the 1 in 5 patients with axial SpA who meet criteria for FM should be a research priority. Copyright © 2017 The Authors. Arthritis & Rheumatology published by Wiley Periodicals, Inc. on behalf of American College of Rheumatology.

Dosing down with biologic therapies: a systematic review and clinicians' perspective

Author(s): Edwards C.J.; Fautrel B.; Schulze-Koops H.; Huizinga T.W.J.; Kruger K.

Source: Rheumatology (Oxford, England); Nov 2017; vol. 56 (no. 11); p. 1847-1856

Publication Type(s): Review

Abstract:The effectiveness of biologic therapies now means that remission or low disease activity are realistic targets for treatment. However, after achieving remission/low disease activity, the next steps remain unclear. The aim of this publication was to conduct a broad systematic literature review to evaluate dosing down of biologics. After screening papers and abstracts for relevance and application of inclusion/exclusion criteria, a structured extraction process was used to collect information on the included studies. Fifty-two papers were included in the analysis across rheumatic disease. In patients who discontinue therapy, remission is not typically sustained, with reported rates of relapse and flare across early RA (48-54%), established RA (2-84%), axial spondyloarthritis (11-53%) and PsA (44.9%). In many cases, an acceptable disease activity can be regained upon retreatment. More research is needed to understand the long-term impacts of these strategies on efficacy, safety and cost. Copyright © The Author 2017. Published by Oxford University Press on behalf of the British Society for Rheumatology.

Anti-CD26 autoantibodies are involved in rheumatoid arthritis and show potential clinical interest

Author(s): Cordero O.J.; Varela-Calvino R.; Lopez-Gonzalez T.; Grujic M.; Juranic Z.; Mourino C

Source: Clinical Biochemistry; Nov 2017; vol. 50 (no. 16); p. 903-910

Publication Type(s): Article

Abstract:Objectives Rheumatoid arthritis (RA) patients show low serum levels of the Ag dipeptidyl peptidase IV (DPP-IV/CD26), both soluble CD26 (sCD26) concentration and its DPP-IV activity. The

aim of this study was to test if anti-DPP-IV/CD26 Abs (Anti-CD26) cleared sCD26. Design & methods Serum Anti-CD26 and Total titers (as comparison) of isotypes IgA, IgM and IgG as well as sCD26 concentration and DPP-IV activity were measured in a cohort of RA patients undergoing different biological and non-biological therapies (n = 105) and controls (n = 50). Results Anti-CD26 levels were increased approximately two-fold for each isotype in RA, were not related to the sCD26 clearance, showed several correlations with disease activity parameters, were significantly higher in smokers and they were not ACPA. Anti-CD26 Igs showed high diagnostic power (82% sensitivity and 96% specificity) and their levels differed amongst the different groups of patients stratified by the type of therapy. Conclusions As DPP-IV/CD26 is associated to factors triggering RA in the lung and periodontal tissue, these results suggest that Anti-CD26 isotypes may participate in pathogenesis and may be useful as biomarkers for earlier diagnosis and/or precision medicine. Copyright © 2017 The Canadian Society of Clinical Chemists

Down-titration of biologics for the treatment of rheumatoid arthritis: a systematic literature review

Author(s): Lau C.S.; Gibofsky A.; Damjanov N.; Lula S.; Marshall L.; Jones H.; Emery P.

Source: Rheumatology International; Nov 2017; vol. 37 (no. 11); p. 1789-1798

Publication Type(s): Review

Abstract: Biologic therapies have improved the management of rheumatoid arthritis (RA) and the treat-to-target approach has resulted in many patients achieving remission. In the current treatment landscape, clinicians have begun considering dose reduction/tapering for their patients. Rheumatology guidelines in Asia, Europe, and the United States include down-titration of biologics but admit that the level of evidence is moderate. We conducted a systematic literature review to assess the published studies that evaluate down-titration of biologics in RA. The published literature was searched for studies that down-titrated the following biologics: abatacept, adalimumab, certolizumab, etanercept, golimumab, infliximab, rituximab, and tocilizumab. Eligible studies included randomized controlled trials (RCTs), non-RCTs, observational, and pharmaco-economic studies. The outcomes of interest were (1) efficacy and health-related quality of life, (2) disease flares, and (3) impact on cost. Eleven full-text publications were identified; only three were RCTs. Study results suggest that dosing down may be an option in many patients who have achieved remission or low disease activity. However, some patients are likely to experience a disease flare. Across the studies, the definition of disease flare and the down-titration criteria were inconsistent, making it difficult to conclude which patients may be appropriate and when to attempt down-titration. Studies have evaluated the practice of dosing down biologic therapy in patients with RA; however, a relatively small number of RCTs have been published. Although down-titration may be an option for some patients in LDA or remission, additional RCTs are needed to provide guidance on this practice. Copyright © 2017, The Author(s).

Clinical Juvenile Arthritis Disease Activity Score proves to be a useful tool in treat-to-target therapy in juvenile idiopathic arthritis.

Author(s): Swart, Joost F; van Dijkhuizen, E H Pieter; Wulffraat, Nico M; de Roock, Sytze

Source: Annals of the rheumatic diseases; Nov 2017

Publication Type(s): Journal Article

Available at [Annals of the Rheumatic Diseases](#) - from BMJ Journals - NHS

Abstract: OBJECTIVE To assess if the Juvenile Arthritis Disease Activity Score (JADAS71) could be used to correctly identify patients with juvenile idiopathic arthritis (JIA) in need of antitumour necrosis factor therapy (anti-TNF) therapy 3 and 6 months after start of methotrexate (MTX). METHODS Monocentric retrospective cohort study from 2011 to 2015 analysing all patients

with oligoarticular JIA (OJIA) (n=39) and polyarticular course JIA (PJIA) (n=74) first starting MTX. Three and 6 months after MTX start, clinical and laboratory features and the 2011 American College of Rheumatology (ACR) JIA treatment recommendations (ACR clinical practice guideline (ACR-CPG)) were compared between groups starting and not starting anti-TNF therapy. The sensitivity and specificity of the ACR-CPG, JADAS71 and the clinical JADAS to identify non-responders after 12 months were calculated. RESULTS Physicians escalated patients with significantly higher physician global assessment, clinical JADAS (cJADAS) and patient Visual Analogue Scale (VAS). The decision not to escalate was correct in 70%-75% as shown by MTX response. The implementation of the ACR-CPG would increase the current anti-TNF use from 12% to 65%. The use of (c)JADAS in identifying patients in need of anti-TNF therapy outperformed the ACR-CPG with a much higher sensitivity, specificity and accuracy. The cJADAS threshold for treatment escalation at month 3 and 6 was >5 and >3 for OJIA and >7 and >4 for PJIA, respectively. The performance of the cJADAS decreased when the patient VAS contribution to the total score was restricted and overall did not improve by adding the erythrocyte sedimentation rate. CONCLUSION The cJADAS identifies patients in need of anti-TNF and is a user-friendly tool ready to be used for treat to target in JIA. The patient VAS is a critical item in the cJADAS for the decision to escalate to anti-TNF.

Supervised or Unsupervised Rehabilitation After Total Hip Replacement Provides Similar Improvements for Patients: A Randomized Controlled Trial.

Author(s): Coulter, Corinne; Perriman, Diana M.; Neeman, Teresa M.; Smith, Paul N.

Source: Archives of Physical Medicine & Rehabilitation; Nov 2017; vol. 98 (no. 11); p. 2253-2264

Publication Type(s): Academic Journal

Abstract: Objective To determine whether patients do better with unsupervised (home-based) physiotherapy or in an outpatient setting. Setting Acute care public hospital in the region, supporting a population of ~540,000. Design Single-blind randomized controlled trial. Participants Adult patients (N=98) after unilateral elective total hip replacement (THR) were randomly assigned to a supervised (center-based) exercise (n=56) or a unsupervised (home-based) exercise (n=42) program and followed for 6 months postsurgery. Interventions The supervised group attended a 4-week outpatient rehabilitation program supervised by a physiotherapist. The unsupervised group was given written and pictorial instructions to perform rehabilitation independently at home. Main Outcome Measures Western Ontario and McMaster Universities Osteoarthritis Index; Short-Form 36-item Health Questionnaire (SF-36) mental and physical component summary measures; University of California, Los Angeles activity scale; and timed Up and Go test. Results There were no differences between the groups for any measure. The overall differences between the adjusted means were as follows: Western Ontario and McMaster Universities Osteoarthritis Index, 0.50 (95% confidence interval [CI], -6.8 to 5.7); SF-36 physical component summary, 0.8 (95% CI, -6.5 to 8.1); SF-36 mental component summary, 1.7 (95% CI, -4.1 to 7.4); University of California, Los Angeles activity scale, 0.3 (95% CI, 5.2 to 6.1); and timed Up and Go test, 0 seconds (95% CI, -1.4 to 1.3s). Conclusions The results demonstrated that outcomes in response to rehabilitation after THR are clinically and statistically similar whether the program was supervised or not. The results suggest that early rehabilitation programs can be effectively delivered unsupervised in the home to low-risk patients discharged home after THR. However, the relative effect of late-stage rehabilitation was not tested.

Mindfulness Is Associated With Treatment Response From Nonpharmacologic Exercise Interventions in Knee Osteoarthritis.

Author(s): Lee, Augustine C.; Harvey, William F.; Price, Lori Lyn; Han, Xingyi; Driban, Jeffrey B.; Wong, John B.; Chung, Mei; McAlindon, Timothy E.; Wang, Chenchen

Source: Archives of Physical Medicine & Rehabilitation; Nov 2017; vol. 98 (no. 11); p. 2265-2265

Publication Type(s): Academic Journal

Abstract:Objective To examine the association between baseline mindfulness and response from exercise interventions in knee osteoarthritis (OA). Design Cohort study; responder analysis of a clinical trial subset. Setting Urban tertiary care academic hospital. Participants Participants with symptomatic, radiographic knee OA (N=86; mean age, 60y; 74% female; 48% white). Interventions Twelve weeks (twice per week) of Tai Chi or physical therapy exercise. Main Outcome Measures Treatment response was defined using Osteoarthritis Research Society International criteria indicating meaningful improvements in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain, WOMAC function, or Patient Global Assessment scores. At baseline, participants completed the Five Facet Mindfulness Questionnaire (mean total score, 142±17) and were grouped into 3 categories of total mindfulness: higher, medium, or lower. Relative risk (RR) ratios were used to compare treatment response across groups. Results Participants with higher total mindfulness were 38% (95% confidence interval [CI], 1.05–1.83) more likely to meet responder criteria than those with lower mindfulness. We found no significant difference between medium and lower mindfulness groups (RR=1.0; 95% CI, 0.69–1.44). Among the 5 mindfulness facets, medium acting-with-awareness was 46% (95% CI, 1.09–1.96) more likely to respond than lower acting-with-awareness, and higher acting-with-awareness was 34% more likely to respond, but this did not reach significance (95% CI, 0.97–1.86). Conclusions In this study, higher mindfulness, primarily driven by its acting-with-awareness facet, was significantly associated with a greater likelihood of response to nonpharmacologic exercise interventions in knee OA. This suggests that mindfulness-cultivating interventions may increase the likelihood of response from exercise.

Extracorporeal shockwave therapy vs. kinesiotherapy for osteoarthritis of the knee: A pilot randomized controlled trial.

Author(s): Lizis, Paweł; Kobza, Wojciech; Manko, Grzegorz

Source: Journal of Back & Musculoskeletal Rehabilitation; Nov 2017; vol. 30 (no. 5); p. 1121-1128

Publication Type(s): Academic Journal

Abstract:BACKGROUND: Osteoarthritis (OA) of the knee is a degenerative, painful pathology, needing conservative treatment for symptoms' relief. OBJECTIVE: Comparing the effects of Extracorporeal shockwave therapy (ESWT) and Kinesiotherapy (KIN) on perceived health and range of motion (ROM) of the affected knee. METHOD: A pilot randomized controlled trial with concealed allocation, assessor blinding, intention-to-treat analysis. Forty participants, aged 40-75 with OA of the knee were randomized to an ESWT and a KIN groups. The ESWT group completed 5 interventions for 5 weeks, the KIN group completed the same number of interventions. All evaluations were performed at baseline and after the treatment for: perceived health (Western Ontario and McMaster Universities questionnaire - WOMAC), range of motion (ROM). RESULTS: After the intervention the statistical significant between groups differences favoring the ESWT were found in the WOMAC with regard to pain ($p < 0.000$), stiffness ($p = 0.018$), physical function ($p < 0.000$), total score ($p < 0.000$), extension and flexion of the affected knee ($p = 0.015$, $p < 0.000$) respectively. CONCLUSIONS: ESWT improves WOMAC and ROM better than KIN on the affected knee in patients with OA of the knee.

Comparison of Treatment Outcomes of Arthrodesis and Two Generations of Ankle Replacement Implants.

Author(s): Benich, Marisa R.; Ledoux, William R.; Orendurff, Michael S.; Shofer, Jane B.

Source: Journal of Bone & Joint Surgery, American Volume; Nov 2017; vol. 99 (no. 21); p. 1792-1800

Publication Type(s): Academic Journal

Available at [The Journal of bone and joint surgery. American volume](#) - from Ovid (Journals @ Ovid)

Abstract:Background: We analyzed self-reported outcomes in a prospective cohort of patients treated with ankle arthrodesis or total ankle replacement (TAR) during a time of transition from older to newer-generation TAR implants.Methods: We performed a prospective cohort study comparing outcomes in 273 consecutive patients treated for ankle arthritis with arthrodesis or TAR between 2005 and 2011. Adult patients with end-stage ankle arthritis who were able to walk and willing and able to respond to surveys were included in the study. Patients were excluded when they had another lower-limb problem that might affect walking. At baseline and at 6, 12, 24, and 36-month follow-up visits, participants completed a pain score, a Musculoskeletal Function Assessment (MFA), and a Short Form-36 (SF-36) survey.Results: There was significant mean improvement in most outcomes after surgery regardless of procedure. In general, the greatest improvement occurred during the first 6 months of follow-up. Linear mixed-effects regression adjusted for differences at baseline in age, body mass index (BMI), and surgery type showed that at 6 months the scores were improved by a mean (and standard error) of 12.6 ± 0.7 (33%) on the MFA, 22.0 ± 1.4 (56%) on the SF-36 Physical Functioning (PF) scale, 32.4 ± 1.6 (93%) on the SF-36 Bodily Pain (BP) scale, and 4.0 ± 0.2 (63%) on the pain rating scale. The mean improvements in the MFA and SF-36 PF scores over the 3-year follow-up period were significantly better after the TARs than after the arthrodeses, with differences between the 2 groups of 3.6 ± 1.6 ($p = 0.023$) and 7.5 ± 2.9 ($p = 0.0098$), respectively. The differences between the 2 groups were slightly greater when only the newer TAR devices were compared with the arthrodeses (MFA = 3.8 ± 1.8 [$p = 0.031$], SF-36 PF = 8.8 ± 3.3 [$p = 0.0074$], SF-36 BP = 7.3 ± 3.6 [$p = 0.045$], and pain score = 0.8 ± 0.4 [$p = 0.038$]).Conclusions: Patients reported improved comfort and function after both surgical treatments. The average improvement in the MFA and SF-36 PF scores was better after TAR than after arthrodesis, particularly when the TAR had been done with later-generation implants. Younger patients had greater functional improvements than older patients.Level Of Evidence: Therapeutic Level II. See Instructions for Authors for a complete description of levels of evidence.

Prospective, Multicenter, Randomized, Crossover Clinical Trial Comparing the Safety and Effectiveness of Cooled Radiofrequency Ablation With Corticosteroid Injection in the Management of Knee Pain From Osteoarthritis.

Author(s): Davis, Tim; Loudermilk, Eric; DePalma, Michael; Hunter, Corey; Lindley, David;

Source: Regional Anesthesia & Pain Medicine; Nov 2017; vol. 42 (no. 6)

Publication Type(s): Academic Journal

Abstract:Background and Objectives: Osteoarthritis (OA) of the knee affects the aging population and has an associated influence on the health care system. Rigorous studies evaluating radiofrequency ablation for OA-related knee pain are lacking. This study compared long-term clinical safety and effectiveness of cooled radiofrequency ablation (CRFA) with intra-articular steroid (IAS) injection in managing OA-related knee pain.Methods: This is a prospective, multicenter, randomized trial with 151 subjects with chronic (≥ 6 months) knee pain that was unresponsive to conservative modalities. Knee pain (Numeric Rating Scale [NRS]), Oxford Knee Score, overall treatment effect (Global Perceived Effect), analgesic drug use, and adverse events were compared between CRFA and IAS cohorts at 1, 3, and 6 months after intervention.Results: There were no differences in demographics between study groups. At 6 months, the CRFA group had more favorable outcomes in NRS: pain reduction 50% or greater: 74.1% versus 16.2%, P IAS ($P = 0.02$). There were no procedure-related serious adverse events.Conclusions: This study demonstrates that CRFA is an effective long-term therapeutic option for managing pain and improving physical function and quality of life for patients with painful knee OA when compared with IAS injection.Clinical Trial Registration: ClinicalTrials.gov (NCT02343003).This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it

is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Rehabilitation and Therapies

The Effect of Early Progressive Resistive Exercise Therapy on Balance Control of Patients with Total Knee Arthroplasty

Author(s): Yousefian Molla R.; Sadeghi H.; Kahlaee A.H.

Source: Topics in Geriatric Rehabilitation; 2017; vol. 33 (no. 4); p. 286-294

Publication Type(s): Article

Abstract:Background and Purpose: Although total knee arthroplasty (TKA) is a common treatment for severe osteoarthritis, high risks of fall and balance loss are the main complications of this procedure. While multiple rehabilitation protocols have been suggested for TKA, efficacy of early resistive exercise therapy aimed at improving balance has not yet been thoroughly investigated. Methods: In this double-blind randomized controlled trial study, 40 patients with severe osteoarthritis, sampled by a simple convenient method, were randomly assigned into either "control" group or "early resistive exercise" group. After TKA surgery, both groups attended a routine rehabilitation program while the experimental group received extra early resistive exercises. Static, semidynamic, and dynamic balance were assessed by the Sharpened Romberg (SRBT), Star Excursion (SEBT), and Berg (BBT) balance tests prior to surgery, after the rehabilitation process (seventh week), and at a 2-week later follow-up time (ninth week). Results: At the end of the seventh and ninth weeks, in both groups all 3 balance scores were significantly enhanced comparing the baseline scores (P Copyright © 2017 Wolters Kluwer Health, Inc. All rights reserved.

Mindfulness Is Associated With Treatment Response From Nonpharmacologic Exercise Interventions in Knee Osteoarthritis

Author(s): Lee A.C.; Harvey W.F.; Han X.; Driban J.B.; McAlindon T.E.; Wang C.; Price L.L.; Wong J.B.

Source: Archives of Physical Medicine and Rehabilitation; Nov 2017; vol. 98 (no. 11); p. 2265

Publication Type(s): Article

Abstract:Objective To examine the association between baseline mindfulness and response from exercise interventions in knee osteoarthritis (OA). Design Cohort study; responder analysis of a clinical trial subset. Setting Urban tertiary care academic hospital. Participants Participants with symptomatic, radiographic knee OA (N=86; mean age, 60y; 74% female; 48% white). Interventions Twelve weeks (twice per week) of Tai Chi or physical therapy exercise. Main Outcome Measures Treatment response was defined using Osteoarthritis Research Society International criteria indicating meaningful improvements in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain, WOMAC function, or Patient Global Assessment scores. At baseline, participants completed the Five Facet Mindfulness Questionnaire (mean total score, 142+/-17) and were grouped into 3 categories of total mindfulness: higher, medium, or lower. Relative risk (RR) ratios were used to compare treatment response across groups. Results Participants with higher total mindfulness were 38% (95% confidence interval [CI], 1.05-1.83) more likely to meet responder criteria than those with lower mindfulness. We found no significant difference between medium and lower mindfulness groups (RR=1.0; 95% CI, 0.69-1.44). Among the 5 mindfulness facets, medium acting-with-awareness was 46% (95% CI, 1.09-1.96) more likely to respond than lower acting-with-awareness, and higher acting-with-awareness was 34% more likely to respond, but this did not reach significance (95% CI, 0.97-1.86). Conclusions In this study, higher mindfulness, primarily driven by its acting-with-awareness facet, was significantly associated with a greater likelihood of response to

nonpharmacologic exercise interventions in knee OA. This suggests that mindfulness-cultivating interventions may increase the likelihood of response from exercise. Copyright © 2017 American Congress of Rehabilitation Medicine

Co-Occurrence and Characteristics of Patients With Axial Spondyloarthritis Who Meet Criteria for Fibromyalgia.

Author(s): Macfarlane, Gary J.; Barnish, Maxwell S.; Pathan, Ejaz; Martin, Kathryn R.

Source: Arthritis & Rheumatology; Nov 2017; vol. 69 (no. 11); p. 2144-2150

Publication Type(s): Academic Journal

Abstract: Objective To estimate the proportion of patients with axial spondyloarthritis (SpA) in a UK national biologics registry who met criteria for fibromyalgia (FM), and to delineate the characteristics of these patients. Methods Two cohorts of patients are prospectively recruited from across 83 centers in the UK for the British Society for Rheumatology Biologics Register in Ankylosing Spondylitis (BSRBR-AS). All patients are required to meet Assessment of SpondyloArthritis international Society (ASAS) criteria for axial SpA. Patients are either newly starting biologic therapy (biologics cohort) or are naive to treatment with biologic agents (non-biologics cohort) at the time of recruitment, and all patients are followed up prospectively. At recruitment and follow-up, clinical information and measurements are recorded while patients complete the 2011 research criteria for FM and assessments of the level of disease activity and work impact. Results Of the patients registered in the BSRBR-AS, 1,504 (68% male) were eligible for the current analysis, of whom 311 (20.7%) met the 2011 research criteria for FM. Prevalence of FM was similar between patients who fulfilled the modified New York criteria for AS (19.7%) and those who fulfilled ASAS imaging criteria but not the modified New York criteria (25.2%); however, among those who fulfilled only the ASAS clinical criteria, the prevalence of FM was lower (9.5%). Patients who met FM criteria reported significantly worse disease activity, function, global severity scores, and quality of life, and were more likely to have moderate or severe levels of mood disorder and clinically important fatigue. Patients who met FM criteria reported experiencing work impairment around half their working time. Meeting FM criteria was not related to elevated C-reactive protein levels or most extraspinal manifestations, but was associated with a higher likelihood of having received biologic therapy. Conclusion Developing management approaches that would address the significant unmet clinical needs of the 1 in 5 patients with axial SpA who meet criteria for FM should be a research priority.

Demographic and Clinical Factors Associated with Non-Surgical Osteoarthritis Treatment Use Among Patients in Outpatient Clinics.

Author(s): Abbate, Lauren M; Jeffreys, Amy S; Coffman, Cynthia J; Schwartz, Todd A

Source: Arthritis care & research; Nov 2017

Publication Type(s): Journal Article

Abstract: OBJECTIVE To identify patient demographic and clinical characteristics associated with osteoarthritis (OA) treatment use. METHODS This was a secondary data analysis of three clinical trials among patients with hip or knee OA conducted in 1) Duke Primary Care practices, 2) the Durham Veterans Affairs Health Care System (DVAHCS), and 3) the University of North Carolina-Chapel Hill (UNC). At baseline, participants reported socio-demographic characteristics, OA-related pain and function, and OA treatment use including oral analgesia, topical creams, joint injections and physical therapy. Separate, multivariable logistic models (adjusted for clustering of clinics and providers for Duke and VA cohorts) were used to estimate odds ratios and 95% confidence intervals (OR, 95% CI) for the associations between participant characteristics and each type of OA treatment. RESULTS Oral analgesic use was reported by 70-82% of participants across the three cohorts. Physical therapy, knee injections, and topical creams were used by 39%-52%, 55-60%, and 25-39% of participants,

respectively. In multivariable models, worse pain, stiffness, and function, per 5-unit increase, were associated with greater odds of using any oral analgesic for the Duke (OR=1.18 (1.08, 1.28)) and UNC (OR=1.14 (1.05, 1.24)) cohorts but not for the VA cohort (OR=1.04 (0.95, 1.14)). For all three cohorts, Non-Whites had higher odds of use of topical creams compared to Whites. CONCLUSION Results suggest potential under-utilization of therapies other than oral analgesia. Patient characteristics may affect OA treatment use, and understanding the relationship between these factors and OA treatment preferences may improve adherence to OA treatment guidelines. This article is protected by copyright. All rights reserved.

Pain and functional trajectories in symptomatic knee osteoarthritis over a 12- week period of non-pharmacological exercise interventions

Author(s): Lee A.; Han X.; Driban J.B.; Bannuru R.R.; Harvey W.F.; Wang C.; Price L.L.

Source: Arthritis and Rheumatology; Oct 2017; vol. 69

Publication Type(s): Conference Abstract

Abstract:Background/Purpose: Exercise is the recommended treatment for knee osteoarthritis (OA). However, heterogeneous patterns in treatment response are poorly understood. Our purpose was to identify pain and functional trajectories from exercise interventions among adults with symptomatic knee OA, and to determine their association with baseline factors. Methods: Secondary analysis of a single-blind, randomized trial comparing 12-week Tai Chi and Physical Therapy exercise programs among adults with symptomatic knee OA (ACR Criteria). We used weekly measures of WOMAC pain (0-500) and function (0-1700) to identify trajectories using group-based trajectory models. Associations between baseline factors and trajectories were examined using multinomial logistic regression. Results: We examined 171 participants (mean age 61 years, BMI 32kg/m², 71% female, 57% white), and identified four pain trajectories: Lower-Early Improvement (43.3%), Moderate-Early Improvement (32.2%), Higher-Delayed Improvement (15.2%), and Higher-No Improvement (9.4%) (Figure). We found similar trajectories for function, except that the lower function trajectories diverged into gradual (11.7%) or delayed improvement (14.6%). Compared with the Lower-Early Improvement pain trajectory, moderate and higher pain trajectories were significantly associated with younger age, obesity, black race, and poorer physical health (Table). Importantly, psychological morbidities, such as greater depressive symptoms were significantly associated with Higher-Delayed (Odds Ratio [OR]: 1.06; 95% CI, 1.004-1.12) and Higher-No Improvement pain trajectories (OR: 1.07; 95% CI, 1.01-1.13) compared with the Lower-Early Improvement group. A similar pattern of significant associations were found among the functional trajectories (data not shown). Conclusion: Using innovative analytical techniques, we found four distinct trajectories for pain and function over 12-week exercise interventions among adults with symptomatic knee OA. While most participants experienced early improvements, subgroups with greater baseline pain/physical disability had either gradual, delayed, or no improvements. Notably, psychological morbidities tended to distinguish non-responders or delayed-responders from early responders. These findings help disentangle the heterogeneity of treatment response and may advance patient-centered care for these patients. (Figure Presented).

Physical therapy Vs. Internet-based exercise training for patients with knee osteoarthritis: Results of a randomized controlled trial

Author(s): Allen K.; Arbeeve L.; Callahan L.F.; Golightly Y.M.; Goode A.P.; Heiderscheid B.; Hill C.

Source: Arthritis and Rheumatology; Oct 2017; vol. 69

Publication Type(s): Conference Abstract

Abstract:Background/Purpose: The majority of adults with osteoarthritis (OA) are inactive, highlighting the need for continued efforts to promote regular engagement in exercise. Few studies

have directly compared different strategies, ranging in intensity of resources required, for improving exercise and related outcomes among patients with OA. The objective of this study was to compare the effectiveness of physical therapy (PT) (with an emphasis on a home exercise program) and internet-based exercise training (IBET) among individuals with knee OA. Methods: This was a randomized controlled trial of 350 participants with symptomatic knee OA, allocated to PT, IBET and a wait list (WL) control group in a 2:2:1 ratio, respectively. The PT group received up to 8 individual visits within 4 months. The IBET program provided tailored exercises, video demonstrations, and guidance on progression. The primary outcome was the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and four physical performance tests were included as secondary outcomes: unilateral stand test, 30-second chair stand, 2-minute march, and Timed Up-and-Go. Outcomes were assessed at baseline, 4 months and 12 months. General linear mixed effects modeling compared changes in outcomes among study groups, using an intent-to-treat paradigm. Results: At 4-months, both the PT and IBET groups improved in WOMAC score, but mean differences compared to WL were not statistically significant (PT: -3.36, 95% Confidence Interval (CI) = -6.84, 0.12, $p=0.06$; IBET: -2.70, 95%CI = -6.24, 0.85, $p=0.14$). Similarly, at 12-months mean differences compared to WL were not statistically significant for either group (PT: -1.59, 95% Confidence Interval (CI) = -5.26, 2.08, $p=0.39$; IBET: -2.63, 95%CI = -6.37, 1.11, $p=0.17$). Results for WOMAC subscales and physical performance tests are shown in Table 1. Conclusion: Modest improvements in outcomes following both PT and IBET were observed in comparison to a WL control group. Initial gains were better for the PT group, but the IBET group maintained improvements in WOMAC better over time. A combination of these two interventions, with IBET used as a tool to facilitate home exercise following PT, may result in more robust effects and maintenance over time.

Dose-response effects of tai chi and physical therapy exercise interventions in symptomatic knee osteoarthritis

Author(s): Lee A.; Han X.; Driban J.B.; Bannuru R.R.; Harvey W.F.; Wang C.; Price L.L.; Iversen M.D.

Source: Arthritis and Rheumatology; Oct 2017; vol. 69

Publication Type(s): Conference Abstract

Abstract:Background/Purpose: Therapeutic exercise is the recommended non-pharmacological treatment for knee osteoarthritis (OA). However, the optimal treatment dose and clinically meaningful treatment durations remain unclear. Our purpose was to examine dose-response relationships, the minimum effective dose, and baseline factors associated with the timing of response from two exercise interventions among adults with symptomatic knee OA. Methods: Secondary analysis of a single-blind, randomized trial comparing 12-week Tai Chi and Physical Therapy exercise programs among adults with symptomatic knee OA (ACR Criteria). WOMAC pain (0-500) and function (0-1700) scores were completed each week of intervention. We defined dose as attendance-weeks (i.e. total treatment weeks attended), and treatment response as $\geq 20\%$ and $\geq 50\%$ improvement in pain and function. Using log-rank tests, we compared time-to-response between interventions, and used Cox regression to examine baseline factors associated with the timing of response ($\geq 50\%$ improvement only). Results: We examined 182 participants (mean age 61 years, BMI 32 kg/m², 70% female, 55% white). Both interventions had linear dose-response effect resulting in a 9 to 11-point reduction in WOMAC pain and a 32 to 41-point improvement in function per week. There was no significant difference in overall time-to-response for pain and function between treatment groups (Figure). Median time-to-response for $\geq 20\%$ improvement in pain and function was 2 attendance-weeks and 4 to 5 attendance-weeks for $\geq 50\%$ improvement. On unadjusted models, we found a general pattern wherein physical health factors, self-efficacy, and outcome expectations tended to be significantly associated with treatment response rather than psychosocial or biomechanical factors (Table). On multivariable models, outcome expectations were independently associated with incident function response (Hazard Ratio: 1.47; 95% CI: 1.004 to 2.14). Conclusion: Both interventions had linear dose-dependent effects on pain and function, their

minimum effective doses ranged from 2 ($\geq 20\%$ improvement) to 5 weeks ($\geq 50\%$ improvement), and patient-perceived benefits of exercise independently influenced the timing of response among adults with symptomatic knee OA. These results may help clinicians optimize patient-centered exercise treatments and better manage patient expectations. (Table Presented).

A scoping review of contextual factors of patient decision aids in osteoarthritis

Author(s): Meara A.; Toupin-April K.; Shea B.; Fraenkel L.; Barton J.; Brooks P.; De Wit M.; Tugwell P.

Source: Arthritis and Rheumatology; Oct 2017; vol. 69

Publication Type(s): Conference Abstract

Abstract:Background/Purpose: Patient decision aids (PDAs) have been developed to help patients make informed health care decisions that are consistent with their values and preferences. Patients diagnosed with osteoarthritis (OA) can choose from a wide array of treatments, such as physical therapy, exercise, medication, joint injections, and surgery (when indicated). OMERACT Filter 2.0 highlights the importance of measuring relevant contextual factors (i.e., any factors that indirectly influence the process or outcomes of interventions) in clinical studies evaluating PDAs. However, very few studies have assessed these factors. A Cochrane Systemic Review published in 2017 performed an in-depth review of benefits of PDAs and performed subgroup analyses based on the timing of the use of PDAs (i.e., before or during a consultation) but did not find any impact. The current study sought to systematically search the literature in order to appraise and summarize contextual factors that were assessed in randomized controlled trials (RCTs) of PDAs in OA.

Methods: We conducted a scoping literature review using Medline, Embase, AMED, PsycInfo and Cochrane Central from inception of the databases to June 14 2017. The search strategy was based on the Cochrane systematic review of PDAs and MeSh terms related to OA. Citations were included if they reported on RCTs evaluating PDAs compared to any control group in patients with OA.

Results: 235 citations were identified after removal of duplicates and six RCTs of PDA in OA were included. Of the six included trials, four were about the effectiveness of PDAs for knee arthroplasty and two others were for overall management of OA. Three RCTs measured PDA format as the main predictor of decision making outcomes (i.e., internet vs. DVD PDAs, and paper-based educational booklet vs. video-booklet PDA). One of these RCTs also examined the impact of patient testimonials. A fourth trial measured the setting in which the PDA was used (i.e., community or academic hospital setting) and another trial conducted subgroup analyses for patients' characteristics. Format and content of the PDA and patients' younger age (i.e., 50-55 years old), sex (female) and willingness to undergo surgery at baseline were linked to better decision-making outcomes.

Conclusion: Contextual factors assessed in RCTs of PDAs in OA include format, content and setting of the PDA and patients' characteristics. There is a need for more research to assess contextual factors in PDA RCTs in rheumatology to fulfill the OMERACT filter 2.0. Potential contextual factors to consider include the timing in which PDAs are used and the interface between the PDA and patients (e.g., tailoring to patients' health literacy, understanding, etc). Future work will be also be needed to assess contextual factors of PDAs in other prevalent rheumatic conditions.

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Exercise: Systematic Reviews

There are seven key steps that need to be taken when carrying out a Systematic Review.

Can you put them in order?

A. Quality assessment

B. Study selection

C. Synthesis

D. Data extraction

E. Define the question

F. Literature search

G. Writing up

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