

is complicated by drug-associated side effects in children with T21. However, a good response to treatment with steroid intra-articular joint injections has been observed. Our study has raised a number of questions. Future research to accurately define this disease & identify best practice with regards to treatment would be invaluable. We advocate that all children with T21 should have annual musculoskeletal examination as part of their health surveillance programme.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7020

FRI0767-HPR PARTICIPATING IN A MUSCULOSKELETAL RANDOMISED CONTROLLED TRIAL: IDENTIFICATION OF EDUCATION TRAINING NEEDS BY OCCUPATIONAL THERAPISTS AND PHYSIOTHERAPISTS IN THE UK

J. Adams^{1,2}, P. Barratt², S. Bradley³, S. Barbosa-Bouças⁴, K. Hislop Lennie⁵, P. White² on behalf of OTTER II Trial working group. ¹Arthritis Research UK, Centre of Excellence Sport, Ex & OA; ²Faculty of Health Sciences, University of Southampton, Southampton; ³Occupational Therapy, Poole General Hospital, Poole; ⁴Department of Psychology, Buckinghamshire New University, High Wycombe; ⁵Health Sciences, University of Southampton, Southampton, United Kingdom

Background: There is an association between clinical teams engaging with research and improvement in the delivery of health services¹. Randomised controlled trials (RCTs) provide strong evidence to influence practice in musculoskeletal services. For occupational therapists (OTs) and physiotherapists (PTs) implementing RCTs is not yet commonplace. As part of a multi-centred clinical effectiveness and efficacy RCT of splints for thumb base osteoarthritis (OTTER II Trial) we established an education training programme to support clinical therapists deliver the trial across 15 UK hospitals.

Objectives: To evaluate the content of trial training to educate and support OTTER II Trial clinicians in undertaking clinical research roles.

Methods: Two trial training days were run in the North and South of England. Therapists provided details of their clinical trial experience. They were asked to identify one area in which they felt confident and one in which they were not confident in participating in a RCT. These perceived facilitators and barriers were summarised using descriptive statistics and content analysis.

Results: Thirty five clinicians (20 OTs, 15 PTs) attended a training day, 13 (37%) had no previous experience with clinical trials; 19 (54%) had been involved with at least one previous clinical trial. Clinicians considered they were already confident in; delivering the trial standardised assessment and treatment to patients n=21 (60%); trusting the OTTER II trial team and their own hospital research departments to support their research role n=11 (31%); understanding the trial protocol and what needed to be delivered n=6 (17%) and, being convinced that the trial asked a relevant question 3 (9%). Areas in which clinicians considered they did not have confidence included; the logistics and time management of delivering a RCT in their own hospital n=18 (51%); the associated trial paperwork to be completed n=8 (23%); NHS computer access/wifi access for randomisation procedure n=7 (20%); recruiting participants to time and target n=6 (17%) and staff capacity to deliver a RCT in the NHS alongside clinical commitments n=5 (14%).

Conclusions: Well documented trial protocols and support from a trusted research team and local hospital research departments were identified as key areas that help clinicians become confident to engage with a national clinical RCT. Clinicians are less confident about managing the practical logistics, staff time and trial paperwork involved in delivering a national RCT. Clinicians identify that they possess core clinical assessment and treatment skills that already equip them to recruit and treat patients as part of a national trial. The logistics of delivering a trial requires ongoing negotiation and support from clinical service managers and the clinical trial teams to ensure clinicians are supported to deliver the RCT to time and target.

References:

[1] Boaz et al 2015 BMJ Open 5:e009415 doi:10.1136/bmjopen-2015-009415.

Acknowledgements: The OTTER II Trial is funded by Arthritis Research UK (Grant Ref number 21019).

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1095

FRI0768-HPR MUSCLE WASTING IN OSTEOARTHRITIS MODEL INDUCED BY ANTERIOR CRUCIATE LIGAMENT TRANSECTION

J.M.D.S. Silva, P.V.G. Alabarse, V.D.O.N. Teixeira, E.C. Freitas, F.H. de Oliveira, R.M.D.S. Chakr, R.M. Xavier. Faculdade de Medicina, UFRGS, Porto Alegre, Brazil

Background: Osteoarthritis (OA) is a chronic joint disease characterized by progressive loss of articular cartilage and abnormal bone formation. Furthermore, there are changes in periarticular muscles, such as loss of muscle mass, strength and function. These features may contribute to functional impairment among patients.

Objectives: This study aimed to investigate the molecular pathways involved in muscle wasting in an animal model of OA induced by anterior cruciate ligament (ACL) transection in rats.

Methods: Female Wistar rats were allocated into two groups: OA (submitted to the ACL transection; n=9) and SHAM (submitted to surgical procedures without ACL transection; n=8) [1]. Spontaneous exploratory locomotion, nociception and body weight of animals were evaluated weekly. Twelve weeks after the disease induction, animals were euthanized and the right knee joints were collected for further confirmation of the disease by histopathology, accordingly to OARSI histologic scoring system [2]. Gastrocnemius muscle from the right hind paw were dissected and weighed. Gastrocnemius was used for evaluation of muscle atrophy [3] and protein expression of myostatin, MuRF-1, MyoD and myogenin. Data were compared by Student's t test or ANOVA followed by Tukey's test or ANOVA followed by Mann-Whitney's U-test. The results are expressed as mean values ± standard deviation (SD) for symmetric variables and as medians with interquartile range for asymmetric variables. Significance was accepted at P<0.05.

Results: Histopathology of the right knee joints confirmed the development of the disease in animals from OA group. Gastrocnemius area of animals from OA group had a reduction of about 10% compared to animals from SHAM group. Protein expression of myostatin was increased in OA group, while myogenin expression was decreased. MuRF-1 and MyoD expression was similar in both OA and SHAM groups. Spontaneous exploratory locomotion, nociception, body weight and weight of gastrocnemius showed no difference between OA and SHAM groups.

Conclusions: Gastrocnemius atrophy in OA induced by ACL transection involves increased protein expression of myostatin and decreased protein expression of myogenin. In this model, muscle wasting may be linked to myostatin-induced deficits in satellite-cell differentiation due to decreased expression of myogenin.

References:

[1] Elsaid KA, Machan JT, Waller K, Fleming BC, Jay GD. The Impact of Anterior Cruciate Ligament Injury on Lubricin Metabolism and the Effect of Inhibiting Tumor Necrosis Factor alpha on Chondroprotection in an Animal Model. Arthritis and Rheumatism. 2009;60(10):2997-3006.

[2] Gerwin N, Bendele AM, Glasson S, Carlson CS. The OARSI histopathology initiative - recommendations for histological assessments of osteoarthritis in the rat. Osteoarthritis and Cartilage. 2010;18:S24-S34.

[3] Filippin LI, Teixeira VN, Viacava PR, Lora PS, Xavier LL, Xavier RM. Temporal development of muscle atrophy in murine model of arthritis is related to disease severity. Journal of Cachexia Sarcopenia and Muscle. 2013;4(3):231-8.

[4] de Oliveira Nunes Teixeira V, Filippin LI, Viacava PR, de Oliveira PG, Xavier RM. Muscle wasting in collagen-induced arthritis and disuse atrophy. Exp Biol Med (Maywood). 2013;238(12):1421-30.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4856

FRI0769-HPR EVALUATION OF THE EFFECTIVENESS OF DEEP WATER RUNNING FOR THE TREATMENT OF CHRONIC NONSPECIFIC LOW BACK PAIN

J.S. Arakaki, F.M. Jennings, S.R. Toffolo, J.C. Tamashiro, J. Natour.

Rheumatology, Universidade Federal de São Paulo- UNIFESP, São Paulo, Brazil

Background: Low back pain (LBP) is one of the most common musculoskeletal conditions and can lead to disability. Aerobic fitness exercises have recently been suggested as important in the management of pain and physical disability of LBP patients, but there are still no studies that prove the best exercise modality for this condition. One proposed modality is the Deep Water Running (DWR) which are aquatic conditioning exercises that simulates normal running on soil.

Objectives: To evaluate the effectiveness of Deep Water Running in the treatment of chronic nonspecific low back pain.

Methods: It was a randomized controlled trial with a duration of 16 weeks with evaluations performed before the intervention and 8 and 16 weeks after the beginning of the training. The population was composed of 60 patients aged over 18 years with diagnosis of chronic nonspecific low back pain. The intervention group performed aerobic conditioning exercise (Deep Water Running) in a heated pool. The sessions had duration of 50 minutes and frequency of 3 times a week for 16 weeks and with 70% of the maximum heart rate, with 10 bpm less for the difference in the behavior of HR in aquatic environment. The control group underwent aerobic conditioning by treadmill exercise for 50 minutes, 3 times a week for 16 weeks, and also with 70% of maximal heart rate. *Evaluation instruments:* Visual analog pain scale (EVA) in cm; Likert Scale of pain improvement and worsening according to the patient and according to the evaluator; Functional capacity through the Roland-Morris questionnaire and 6-minute walk test; SF-36 for general quality of life; And amount of anti-inflammatories used during the study period. Evaluations were performed by an evaluator who was unaware of the patient allocation group.

Results: The two groups were homogeneous regarding most clinical demographic characteristics in the initial evaluation. The two groups showed statistically significant improvement in the variables Roland Morris, EVA for pain and Time up and go, but no statistically significant differences were found between groups. At the Likert scale, the 6-minute walk test and the amount of anti-inflammatories used during the study, no significant differences were found, the two groups remained unchanged. No adverse events were observed in either group during the exercise program.

Conclusions: Deep water running aerobic exercise is as effective as treadmill walking in improving pain and functional capacity in patients with chronic nonspecific low back pain.

References:

- [1] Abenham L, Rossignol M, Nordin M, Avouac B, Blotman F, Charlot J. The role of activity in the therapeutic management of back pain. Report of the International Paris Task Force on Back Pain.
- [2] Brendon J, Bloess K, Oppermann J, Boese CK, Lohrer L, Eysel P. Conservative treatment of nonspecific, chronic low back pain: Evidence of the efficacy- a systematic literature review. *Orthopade*. 2016 jul;45 (7): 573–8.
- [3] Cuesta-Vargasai, Adams N, Salazar JA, Belles. sPINE 2000; 25 (4SUPPL): 1S-33S. A, Hazanas S, Arroyo Morales. Deep water running and general practice in primary care for non- specific low back pain versus geeneral practice alone: randomized controlled trial. *Clin Rheumatol*. 2012 jul; 31 (7): 1073–8.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1648

FRI0770-HPR A BETTER WAY TO DECREASE KNEE SWELLING IN PATIENTS WITH KNEE OSTEOARTHRITIS: INTERMITTENT PNEUMATIC COMPRESSION – A RANDOMIZED CONTROLLED CLINICAL TRIAL

Z. Sari, O. Aydoğdu, I. Demirbükten, U.S. Yurdalan, G.M. Polat. *Physiotherapy and Rehabilitation, Marmara University, Health Sciences Faculty, Istanbul, Turkey*

Background: One of the most common symptoms of knee OA is swelling. Knee swelling negatively affects knee mechanics and muscle activity in patients with OA. Thus, knee swelling should be eliminated in the early period of rehabilitation. The utility of cold therapy for musculoskeletal injuries has been clearly established (1). It was shown that cold therapy may not be a statistically effective modality in improving range of motion and decreasing knee swelling (2). Intermittent pneumatic compression (IPC), which has been used to treat limb swelling, is a common option for patients with lymphedema and venous leg ulcers. Currently, IPC is primarily used in the prevention of deep venous thrombosis. It is also used for venous insufficiency, arterial occlusive disease, prevention of hematoma, etc (3). However, despite its widely accepted use, the literature on IPC in musculoskeletal injuries is limited. In particular, there is no report on whether IPC, which is known to have positive effects on circulatory problems, affects the knee swelling in OA.

Objectives: In this study, we hypothesized that IPC may have better outcomes on knee swelling. We also investigated whether IPC may contribute to better short-term patient outcomes in patients with knee OA rather than cold therapy.

Methods: This was a randomized, prospective, comparative clinical study. The study included 81 patients aged 18–65, who were admitted to the Or – Ahayim Balat Hospital. The patients were randomly divided into two groups. One group (n=36) received ultrasound, transcutaneous electrical nerve stimulation, electrical stimulation, exercise, and cold packs. The second group (n=45) received ultrasound, transcutaneous electrical nerve stimulation, electrical stimulation, exercise, and IPC. The primary outcome on pre- and post – treatment follow – up was knee swelling. Secondary outcome measures included range of motion, muscle strength, pain intensity and disability.

Results: Intermittent pneumatic compression significantly decreased knee swelling in patients with osteoarthritis ($p < 0.001$). A significant difference between the groups was found in knee swelling in favour of the intermittent pneumatic compression group ($p = 0.028$). We also found significant improvements in range of motion, muscle strength, pain intensity and disability in both groups ($p < 0.05$). No significant differences in any of secondary outcome variables between the groups ($p > 0.05$).

Conclusions: The mechanism of our hypothesis was that in opposite of cold therapy which has local effects, IPC may affect circulatory of all lower extremity in patients with swollen knee. This randomized - controlled trial confirmed the hypothesized advantage of intermittent pneumatic compression over cold - pack on knee swelling in patients with knee osteoarthritis.

References:

- [1] Rutherford DJ, Hubley-Kozey CL, Stanish WD: Knee effusion affects knee mechanics and muscle activity during gait in individuals with knee osteoarthritis. *Osteoarthr. Cartil*. 2012;20(9):974–81.
- [2] Markert SE. The use of cryotherapy after a total knee replacement: a literature review. *Orthopaedic Nursing*. 2011;30(1):29–36.
- [3] Chen AH, Frangos SG, Kilaru S, et al.: Intermittent pneumatic compression devices – Physiological mechanisms of action. *Eur J Vasc Endovasc Surg*. 2001;21(5):383–92.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.5696

FRI0771-HPR WORK – RELATED LUMBAR PAIN IN PHYSIOTHERAPISTS WHO WORK IN DIFFERENT FIELDS – A PILOT STUDY

B. Karakoç, Z. Sari, O. Aydoğdu, U.S. Yurdalan. *Physiotherapy and Rehabilitation, Marmara University, Health Sciences Faculty, Istanbul, Turkey*

Background: Having a job exposing the load on the lumbar region increases lumbar pain risk. Lumbar pain takes first place in musculoskeletal disorders among health care workers. A survey which investigated musculoskeletal disorders in

physiotherapists indicated that the most common musculoskeletal disorders have seen in the lumbar region.

Objectives: The aim of this study was to determine the work – related lumbar pain in physiotherapists who work in different fields and differences in terms of occupational and personal variables.

Methods: This was a prospective, comparative and multi – central study. Physiotherapists who accepted to participate in this study voluntarily and work at any of paediatric, orthopaedic and neurological fields were received. Eighty – eight physiotherapists were taken first assessment. Their demographic information were taken and they filled out the Oswestry Low Back Disability Questionnaire. Twenty – nine cases who had any orthopaedic disease, surgical history and did not fill the entire of the Oswestry Low Back Disability Questionnaire excluded from the study. Twenty – eight women and 31 men met the criteria for inclusion. Physiotherapists were divided into three groups as paediatric (n=21), orthopaedic (n=24) and neurological (n=14). Lumbar pain level, the number of daily patient transfer, daily working hours and daily standing working hours in three groups were compared. One – way ANOVA was used to compare the groups. SPSS v11.5 was used for the statistical analysis.

Results: There were no significant differences in lumbar pain levels between groups ($p = 0.342$). Daily standing working hours of paediatric group were significantly less than orthopaedic group ($p = 0.021$) and the number of daily patient transfer were significantly higher in paediatric group according to orthopaedic group ($p = 0.028$). Daily standing working hours and the number of daily patient transfer of neurological group had no differences between other groups ($p = 0.173$).

Conclusions: We think that the reason why no differences between the pain level of paediatric and orthopaedic group may be due to more daily transfers in paediatric group and more daily standing working hours in orthopaedic group. The cause why no differences between neurological field and others, might be because of another working factors which we did not assessed. There is a need for research examining in detail on working conditions and trials including more cases.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.6858

FRI0772-HPR FORMAL RHEUMATOLOGY TRAINING FOR GENERAL PRACTITIONERS

S. Khan¹, A. Mohammad¹, K.P. O'Rourke¹, C. Sheehy². ¹ *Rheumatology, Rheumatology, Midland Regional Hospital, Tullamore, Tullamore;* ² *Rheumatology, University Hospital Waterford, Waterford, Ireland*

Background: Formal post graduate training in rheumatology is limited for primary care physicians or general practitioners. General practitioners (GPs) have extraordinary wide knowledge base, and deal with all age groups, from minor ailments to serious illnesses, thus it's not possible to expect them to have a strong hold of specialised conditions like inflammatory arthritis (IA) (2). General practitioners can be trained to manage these conditions in order to break the disconnect between the flow of knowledge and the burden of care in rheumatic conditions.

Objectives: The Rheumatology department in Midlands Regional Hospital and University Hospital Waterford facilitates GPs teaching in rheumatology outpatients clinics. Every year six GP trainees are trained by consultant rheumatologist. Each trainee receives one on one education in managing rheumatologic conditions including joints and soft tissue injections. This survey was done to evaluate whether GP trainees benefited from it in diagnosing and treating rheumatologic diseases when compared to non rheumatology trainees.

Methods: This is a cross sectional study of a convenience cohort. GP trainees who received rheumatology training as part of their hospital rotation were included as “cases”, and compared to those who didn't have any formal rheumatology exposure during their training g as “control”. The cases attended supervised rheumatology outpatients for one year, and. A questionnaire was emailed as well as distributed to the GP trainees, it included questions on trainees' ability and comfort level in diagnosing, assessing and managing inflammatory and non inflammatory conditions, along with joint and soft tissue injections.

Results: There were 60 participants in the study, 30 cases and controls each. Majority (94%) didn't have formal rheumatology teaching in the medical school, but had rheumatology experience post graduation, 30 being GP trainee in rheumatology and 7 as senior house officers attached to rheumatology team. The GP trainees had an average of 7 months exposure to rheumatology. The GP trainees who attended the rheumatology clinics were confident in: examining joints, differentiating musculoskeletal/ mechanical from inflammatory conditions, educating patients and commencing them on DMARDs, interpreting serological tests (RF, CCP, ANA etc), managing osteoarthritis, tennis elbow, and soft tissue and intra-articular Knee and shoulder injections, as compared to the trainees who didn't have any formal rheumatology training ($P < 0.001$).

Conclusions: Rheumatology teaching for the GP trainees is certainly beneficial, and helps them in managing rheumatologic conditions in primary care settings.

Acknowledgements: Dr Declan Brennan, General Practitioner Coordinator, Midlands, Tullamore.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4917