between RT and HP. In view of other published studies on hand problems in SSc, a surprisingly small amount of referrals to occupational- and hand therapists. Further research should focus on the optimisation of professional communication.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4428

THURSDAY, 14 JUNE 2018

HPR Interventions (educational, physical, social and psychological)

THU0720-HPR FACTORS ASSOCIATED WITH POOR SLEEP QUALITY IN PATIENTS WITH CHRONIC WIDESPREAD PAIN: RESULTS FROM THE AMSTERDAM PAIN COHORT

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Background: Reduced sleep quality is a major concern in patients with chronic widespread pain (CWP).^{1,2} Poor sleep quality in CWP has received relatively little attention in both multidisciplinary treatment and clinical research in multidisciplinary treatment.^{3,4}

Objectives: (i) To investigate the prevalence of poor sleep quality and (ii) to explore the associations between clinical, cognitive and emotional factors and quality of sleep in patients with CWP indicated for multidisciplinary treatment.

Methods: Baseline data were used from 163 CWP patients referred for multidisciplinary treatment. Linear regression models, adjusted for age and gender, were used to assess the relationship of clinical (pain, fatigue, pain interference and disability), emotional (anxiety, depression and psychological distress) and cognitive factors (catastrophizing, acceptance, self-efficacy, kinesiophobia and illness beliefs) with sleep quality, as measured with the Pittsburgh Sleep Quality Index (PSQI).

Results: Poor sleep quality was found in 92% of the patients. The multivariate model showed that a higher level of fatigue, psychological distress and more concerns about the illness were independently associated with poorer quality of sleep. The model explained 27.9% of the variance of sleep quality.

Conclusions: The high prevalence of poor sleep quality in patients with CWP referred for multidisciplinary treatment emphasises the need to target sleep during the treatment program. Poorer quality of sleep is related to a higher level of fatigue, psychological distress and more concerns about the illness. Attention to these factors during multidisciplinary treatment could contribute to improvement in quality of sleep.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.7369

THU0721-HPR THE EFFECTS OF UPPER AND LOWER LIMB EXERCISE ON THE MICROVASCULAR REACTIVITY IN SYSTEMIC SCLEROSIS PATIENTS

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Background: Vascular endothelial injury is one of the early hallmarks in systemic sclerosis (SSc). High intensity interval training (HIIT) is known to improve vascular function in a range of clinical conditions. Ramos et al., 2015 HIIT in particular has demonstrated improvements in clinical outcomes, in conditions that have a strong macroangiopathic component. Nevertheless, the effect of HIIT on microcirculation in SSc patients is yet to be investigated.

Objectives: Therefore, the purpose of the study was to compare the effects of two HIIT protocols (cycle and arm cranking) on the microcirculation of the digital area in SSc patients.

Methods: Thirty four SSc patients (65.3±11.6 years old) were randomly allocated in three groups (cycling n=11, arm cranking n=11 and control group n=12). The exercise groups underwent a twelve-week exercise program twice per week. All patients performed the baseline and post-exercise intervention measurements where the physical fitness, functional ability, transcutaneous oxygen tension ($\Delta t\text{cpO}_2$), body composition and quality of life were assessed. Endothelial-dependent as well as -independent vasodilation were assessed in the middle and index fingers using LDF and incremental doses of acetylcholine (ACh) and sodium nitroprusside (SNP). Cutaneous flux data were expressed as cutaneous vascular conductance (CVC).

Results: Peak oxygen uptake increased in both exercise groups ($p<0.01$, $d=1.36$). $\Delta t\text{cpO}_2$ demonstrated an increase in the arm cranking group only, with a large effect, but found not statistically significant ($p=0.59$, $d=0.93$). Endothelial-dependent vasodilation improvement was greater in the arm cranking ($p<0.05$, $d=1.07$) in comparison to other groups. Both exercise groups improved life satisfaction ($p<0.001$) as well as reduced discomfort and pain due to Raynaud's phenomenon ($p<0.05$). Digital ulcers and hospitalizations reported in four patients (36%) of the control group and one of them proceeded for amputation. Arm cranking seems to be the preferred mode of exercise for study participants as compared to cycling ($p<0.05$). No changes were observed in the body composition or the functional ability in both exercise groups compared to the control group.

Conclusions: Our results suggest that the arm cranking has the potential to improve the microvascular endothelial function in SSc patients and to prevent digital ulcers and further related complications. Also notably, our recommended training dose (e.g., a 12 week HIIT program, twice per week), appeared to be sufficient and tolerable for this population. Future research should focus on exploring the feasibility of a combined exercise such as aerobic and resistance training by assessing individual's experience and the quality of life in SSc patients.

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Acknowledgements: This research was supported by Sheffield Hallam University. We would also like to thank the patients who took part in our research study.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.1979

THU0722-HPR PHYSICAL THERAPY IS EFFECTIVE IN PATIENTS WITH ANKYLOSING SPONDYLITIS: A RANDOMISED CONTROLLED TRIAL

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Background: Ankylosing spondylitis (AS) is a chronic inflammatory disease that predominantly affects the spine and may cause serious functional impairment. The prevalence of AS is approximately 0.1% of the Caucasoid population. Treatment of AS includes use of antiinflammatory drugs to reduce pain and stiffness. In addition, patients are advised to exercise daily and to engage in weekly group physical therapy to maintain mobility of the spine and peripheral joints.

Objectives: To evaluate the effects of physical therapy on pain, disease activity, functional and emotional status and quality of life in patients with AS.

Methods: Thirty one patients diagnosed with AS and followed up in outpatient clinic were conducted into the study. Routine physical examination of musculoskeletal and neurological system of all patients has been performed. Patients divided into two groups (physical therapy group and control group) as random. 15 seance physical therapy (hotpack, ultrasound, TENS and hydrotherapy) exercise and medical treatment performed for the physical therapy group and only home exercise programme and medical treatment for control group. All patients received medical therapy which was not changed during the study. We evaluated all patients with visual analogue scale (VAS) at night and rest for pain, Bath Ankylosing Spondylitis Functional Index (BASFI) for functional status, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) for disease activity and modified Schober, finger floor distance (FFD), lateral flexion of the lumbar spine, cervical rotation, intermaleolar distance, tragus wall distance, chest expansion, cheek manubrium distance and Bath Ankylosing Spondylitis Metrology Index (BASMI) for spinal mobility measurements at the beginning, 2nd and 6th weeks. Also Beck Depression Inventory (BDI) and short form 36 (SF-36) were fulfilled by all patients at the beginning and 6th week.

Results: Between the groups there was no difference in demographic data. We showed significant improvement in all parameters except lateral flexion, tragus wall distance measurements for spinal mobility and beck depression index scores at second week ($p<0.05$) in physical therapy group. This improvement in all parameters was discontinued for intermalleolar distance, cheek manubrium distance, cervical rotation, finger floor distance and BASFI at 6th week measurements. We also showed significant improvements mental capacity and social function subgroups of SF-36 at 6th week when compared with beginning ($p<0.05$). We detected significant improvement in second week and sixth week for VAS rest and general health subgroup of SF-36 at physical therapy group when comparing two groups.

Conclusions: Physical therapy may have beneficial effects on pain, spinal mobility and quality of life in patients with AS.

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Disclosure of Interest: A. Ünal Enginar Shareholder of: none, Grant/research support from: none, Consultant for: none, Employee of: none, Paid instructor for: none, Speakers bureau: none, H. Uğurlu Shareholder of: none, Grant/research support from: none, Consultant for: none, Employee of: none, Paid instructor for: none, Speakers bureau: none

DOI: 10.1136/annrheumdis-2018-eular.3143

THU0723-HPR NICE GUIDANCE ON SPONDYLOARTHRITIS: RECOMMENDATIONS SUPPORTING RECOGNITION AND REFERRAL BY PHYSIOTHERAPISTS & PODIATRISTS

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Background: Physiotherapists and podiatrists are key to earlier diagnosis of spondyloarthritis (SpA) and have an essential role in assessing for signs, symptoms and risk factors in people with joint, tendon or back pain. Spondyloarthritis can be a challenge to recognise and often mistaken as chronic back pain or unrelated tendon and joint problems. Symptoms can move around, flare and settle, and links between back pain, peripheral problems and extra-articular conditions can be missed.

Objectives: This presentation raises awareness of recent NICE guidelines on Spondyloarthritis¹ and provides an overview of recommendations on recognition and referral relevant for physiotherapists and podiatrists.

Methods: The guideline was developed using standard NICE guideline methodology. Quality ratings of evidence applied GRADE methods based on quality of available evidence for assessed outcomes. When standard methodology could not be applied, customised quality assessments provided narrative summaries or customised GRADE tables. Recommendations were developed by a multispecialty development group which included people with SpA and review by stakeholder organisations informing the final version.

Results: NICE guidance offers recommendations for suspecting axial and peripheral presentations and when to refer to rheumatology for assessment. These are based on the evidence for signs, symptoms and risk factors that increase the likelihood that a person may have SpA. The guidance highlights that SpA can occur with negative HLA B27, normal inflammatory markers and not to exclude SpA based on any one sign, symptom or test result.

Referral is recommended for suspected axial spondyloarthritis with back pain lasting >3 mths with onset before 45 years of age plus four or more additional features: Onset before 35 years; Woken second half of night by symptoms; Buttock pain; Improves with movement; Improves within 48 hours of taking NSAIDs; First-degree relative with SpA or psoriasis; Current/past enthesitis; Current/past psoriasis; Current/past uveitis plus psoriasis or if HLAB27 positive).^{1,2} Morning stiffness lacked specificity as a referral criterion for axial SpA however prolonged morning stiffness remains important in suspecting inflammatory disease.

Referral is recommended for suspected peripheral SpA if a person presents with dactylitis; or with persistent or multiple-site enthesitis (inflammation at tendon/ligament attachment to bone) without apparent mechanical cause plus if any of the following: back pain without apparent mechanical cause; current/past psoriasis; inflammatory bowel disease or uveitis; first degree relative with SpA or psoriasis; or symptom onset following gastrointestinal or genitourinary infection.

Conclusions: Recognising possible signs, symptoms and risk factors of spondyloarthritis is an essential aspect of clinical practice for clinicians assessing musculoskeletal problems. Recent NICE guidance offers advice on suspecting SpA and when to refer to rheumatology for assessment to support earlier diagnosis, treatment and reduce the significant impacts of these conditions.

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Acknowledgements: Dr Carol McCrum was on the guideline development committee and has a NICE Fellowship to raise awareness and support implementation of these guidelines

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.1412

THU0724-HPR INVESTIGATION OF IMMEDIATE EFFECT OF CERVICAL STABILISATION EXERCISES ON PROPRIOCEPTION IN PATIENTS WITH NECK PAIN

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Background: Reduced ability to maintain and upright posture, may reflect impaired muscle endurance and proprioceptive accuracy required to control the postural position in patients with neck pain. A recent study investigated the effect of cervical stabilisation exercises on proprioception of neck pain patients. But in mentioned study the joint position change was evaluated for only cervical flexion movement.

Objectives: The aim of our study is determine the acute effect of cervical stabilisation exercises on joint position sense in all ranges of neck movement in patients with idiopathic chronic neck pain.

Methods: 20 patients (27–45 ages, 80%female and 4 men 20% male) with neck pain for more than 3 months were participated in this study. Exercise training was performed only one session. Patients with any neurological deficits, any recent injuries to neck and were excluded from the study. Training included craniocervical flexion, deep cervical extensor muscle activation, isometric flexion-extension exercises in upright position and shoulder flexion with neutral cervical position in upright position. Each exercise were performed five times. The measured variables included joint repositioning errors in the sagittal and horizontal directions. Visual Analogue Scale (VAS), Neck Disability Index (NDI) were implemented for determining the personal characteristics of patients. Cervical joint repositioning error was evaluated by laser pointer in flexion, extension, rotation and lateral flexion of cervical movement directions at sitting position before and after exercise session. Wilcoxon test was used to compare to differences between repeated assessments

Results: VAS values for pain intensity were (mean $\pm$ SD) 5.56 ± 3.17 , NDI values were 14.06 ± 6.83 and HADS scores were 18.27 ± 2.23 . In comparison to baseline values, joint position error was significantly lower in flexion, extension, rotation and lateral flexion directions at horizontal and sagittal planes ($p<0.001$) except right lateral flexion at sagittal plane ($p>0.05$) (table 1).

Abstract THU0724HPR – Table 1. Comparison of joint position errors

Variable (degree)	Before exercise Median $\pm$ SD	After exercise Median $\pm$ SD	p value
JPE in flexion horizontal	1.71 $\pm$ 0.66	0.57 $\pm$ 0.80	<0.001
JPE in flexion sagittal	1.14 $\pm$ 0.43	0.68 $\pm$ 0.40	<0.001
JPE in extension horizontal	0.85 $\pm$ 0.48	0.57 $\pm$ 0.42	<0.001
JPE in extension sagittal	0.85 $\pm$ 0.55	0.28 $\pm$ 0.22	<0.001
JPE in right rotation horizontal	1.05 $\pm$ 0.53	0.57 $\pm$ 0.31	<0.001
JPE in right rotation sagittal	0.76 $\pm$ 0.73	0.28 $\pm$ 0.30	<0.001
JPE in left rotation horizontal	1.14 $\pm$ 0.39	0.28 $\pm$ 0.42	<0.001
JPE in left rotation sagittal	0.95 $\pm$ 0.49	0.29 $\pm$ 0.28	<0.001
JPE in right side bend horizontal	1.05 $\pm$ 0.56	0.57 $\pm$ 0.28	<0.001
JPE in right side bend sagittal	0.19 $\pm$ 0.36	0.19 $\pm$ 0.22	0.209
JPE in left side bend horizontal	1.19 $\pm$ 0.54	0.47 $\pm$ 0.37	<0.001
JPE in left side bend sagittal	0.19 $\pm$ 0.39	0.38 $\pm$ 0.23	<0.001

JPE=Joint position error, p values are based on Wilcoxon Signed Ranks Test