OP78. STRESS SIGNAL TRANSDUCTION PATHWAYS ACTIVATED IN EPIDERMAL KERATINOCYTES IN SYSTEMIC SCLEROSIS

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Background: Recently we have shown that epidermal keratinocytes in scleroderma (systemic sclerosis; SSc) are activated via wound healing pathways. Moreover, we found that SSc epidermis activates normal dermal fibroblast in vitro, promoting fibrosis via cytokine and CTGF. Because of these findings we have become interested in the mechanism of keratinocyte activation in the disease. In order to explore this further we have performed phosphorylation array analysis on whole keratinocyte layer skin biopsy material from recent onset diffuse SSc patients and from healthy controls, measuring the phosphorylation status of proteins involved in signal transduction.

Methods: 4 mm excision biopsies were obtained from the forearm of lesional skin of diffuse scleroderma patients within 2 years of the onset of skin changes, and from the forearm of healthy control subjects. For phosphorylation analysis of activation of signaling pathways in SSc epidermis, SSc (n=5) and healthy control (n=5), epidermis was separated surgically from snap frozen skin biopsy material. Phospho-kinase screening was performed by Kinexus for abundance of phosphorylated proteins and comparison drawn against the pattern of phosphorylation in healthy control. These changes were further examined using immunohistochemistry using anti-phosphoSMAD2/3, anti-ERK, anti-c-Jun, and anti-p38.

Results: A number of signaling molecules showed elevated phosphorylation states in SSc tissues versus controls, including stress activated mitogen activated protein kinases (c-Jun N-terminal kinase, p38, and Ras/MEK/ERK). The HGF receptor c-met and downstream STAT 3, and SMAD2, a receptor-associated SMAD involved in TGFβ signal transduction.

Conclusions: The overall pattern emerging from these studies is of stress signaling pathway activation in the SSc epidermis. Induction of HGF in adjacent dermal fibroblast may be exerting feedback on to epithelial cells via c-met and STAT3. Possible explanations for the changes observed include keratinocyte activation by environmental stressors, or induction via an autoimmune mechanism. The latter is supported by recent data from our laboratory which reveals that some but not all SSc IgG bind to and activate keratinocytes via IL-1α.

Disclosure: The authors have declared no conflicts of interest.

OP79. GROUP CLINICS CAN DELIVER EFFECTIVE CARE FOR RHEUMATOID ARTHRITIS: A FEASIBLE MODEL FOR AN ANNUAL REVIEW CLINIC

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Background: Group clinics are an alternative model of care to 1:1 clinic appointments. They differ from education groups, in providing access to investigations and treatment; and from 1:1 appointments in having a higher ratio of patients to health professionals and a longer duration. Group clinics have been used by a Health Maintenance Organisation in the USA, Kaiser Permanente, to see patients prior to endoscopy, for example. However, there is no evidence for the effectiveness of group clinics in the delivery of care in Rheumatology. The objective of this study was to pilot the feasibility of group clinics for inflammatory arthritis patients and provide data on the quality of care delivered.

Methods: Firstly, the relevant staff were engaged and pilot dates agreed. Follow up staff were given an education session and a data collection package. On the day, the group consultation itself lasted for 90 minutes, including ground rules, selection of topics and discussion. The data collected for each visit included completion of the health assessment questionnaire (HAQ) and disease activity score (DAS28).

The group consultation itself lasted for 90 minutes, including ground rules, selection of topics and discussion. It comprised a median of 15 minutes for 1:1 consultation. Injections, treatment changes or confidential issues were dealt with after the main session. The session was evaluated using a previously validated questionnaire.

Results: 20 patients & carers attended one of two pilot sessions (60% response). The sessions were feasible and productive. Median (interquartile range) evaluation data were as follows: Listening to you (10-10); Explaining the disease & options (10-10); Looking at your joints (10-8); Discussing options for treatment (10-9); Providing treatment (10-10); Arranging access to MDT (10-9-10).

Every patient/carer reported they would come again and would recommend group clinics to others.

The following treatments were given: Parenteral steroid (5); Joint injection (2); DMARD change (3); NSAID/coxib/PPI (3); Referrals (6).

Conclusions: Rheumatology group clinics can work. Patients enjoy them and this study has provided some initial evidence of the delivery of high quality care. The group clinic can provide a longer contact time than a 1:1 appointment and there may be potential to replace a proportion of 1:1 clinics. However, not all patients want to try them initially.

We propose to extend this pilot and explore the use of group clinics as a model for the successful delivery of annual review clinics, which have failed to become established despite regional and national enthusiasm. The group clinic structure allows collection of key outcome data and access to the multidisciplinary team in a cost effective framework, whether consultant led (as here) or potentially facilitated by other MDT members.

Disclosure: The author has declared no conflicts of interest.

OP80. SELF-REPORTED HAND FUNCTION AND ADAPTATION BEHAVIOUR IN COMMUNITY-DWELLING OLDER ADULTS OVER AN 18-MONTH PERIOD

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Background: Prevalence of musculoskeletal hand pain in the general population has been estimated between 12% and 21%. Adapting to decreased hand function has been identified as a coping mechanism, although the role of adaptation behaviour in mediating hand function remains unknown. Previous work has shown that adaptation behaviour is related to community dwelling older adults with hand problems is widespread. This current work aims to investigate whether the type of adaptation behaviour used is related to decline in hand function over 18 months.

Methods: Data were collected from the North Staffordshire Osteoarthritis Project: Clinical Assessment Study of the Hand. Consenting participants 50 years and over were invited to complete a clinical assessment if they reported hand pain or problems in the previous 12 months in a survey questionnaire. Hand function was assessed by self-report (AUSCAN), with higher scores indicating worse hand function. Adaptation behaviours were determined only at baseline from a clinical interview (yes/no for gadgets, help from another person, avoidance, finding a different way of doing something, stopping or reducing activities, taking longer). A follow-up questionnaire was sent to participants 18-months after baseline assessment. Data were described using the median and inter-quartile range (IQR). ANOVA adjusted for baseline AUSCAN score was used to analyse change between AUSCAN scores at baseline and 18 months for each adaptation behaviour.

Results: Of the 623 people who attended the clinical assessment, 2 had severe hemiplegia and were excluded, leaving 621 for analysis (mean age 64 yrs; 62% female). At 18-months, questionnaires were completed by 593 (95%) participants. Median (IQR) AUSCAN score was 8.0 (3.0, 17.0) at baseline, and 9.0 (1.0, 17.0) at 18 months. Baseline median (IQR) AUSCAN score was higher for those who used gadgets (13.0 [6.0, 19.0]) than for those who did not (4.0 [1.0, 12.0]). A similar pattern was observed for the other adaptation behaviours, with median AUSCAN scores ranging from 12.0–16.0 for those who used a given behaviour, to 3.0-5.0 for those who did not. A similar pattern was observed, at 18 months. Comparing individual’s AUSCAN change scores at the 2 time points, the hand function of participants who had help deteriorated less than for those who did not (1.35 [95% CI: 0.19, 2.50], p = 0.023). Similarly, the hand function of those who took longer to carry out activities deteriorated less than those who did not (2.08 [95% CI: 0.47, 3.71], p = 0.032).

Conclusions: Self-reported hand function appears to be fairly stable in this population over a period of 18 months. Our results suggest that those participants who asked for help or took longer to carry out activities had less deterioration in hand function.

Disclosure: The authors have declared no conflicts of interest.
Disclosure: The authors have declared no conflicts of interest.

OP81. A CONTROLLED STUDY OF PLANTAR FOOT PRESSURE IN PATIENTS WITH RHEUMATOID ARTHRITIS
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Background: Rheumatoid Arthritis (RA) is a common inflammatory arthritis that causes destruction of the synovial joints. Small joint inflammation, especially in the feet, is a hallmark of early RA and metatarsophalangeal joint synovitis and intermetatarsal bursitis are particularly common. Foot pressure variables have been commonly investigated in RA but uncertainties exist as to whether spatial or temporal aspects are of greater importance.

The objective of this study was to explore both the spatial and temporal aspects of foot pressure variables in a large cohort of RA patients and compare the findings to a healthy comparison group.

Methods: A cross sectional study design was used to investigate foot pressures in RA patients (ACR diagnostic criteria) and healthy controls. Foot pressure measurements were recorded by an F-Scan in-shoe system (Tekscan Inc, USA). The value and location of peak pressure, time of peak pressure, force-time integral, temporal and spatial variables are reported in Table 1.

Using independent t-tests significant differences were found between the RA group and healthy controls, for time of peak pressure (p < 0.001) and force-time integral (p < 0.001). Patients with RA significantly greater force-time integral and time of peak pressure in comparison to the controls for both left and right feet. ANOVA was used to assess whether these difference could be due to the confounding influences of age and weight. After adjustment for age and weight the results remained significant (p < 0.001). No significant differences were seen in any of the other variables.

Conclusions: Data from this study indicates that temporal aspects of foot pressure (time of peak pressure, force-time integral) are significantly higher in RA patients consist of 51 items in two domains: impairment/footwear (LFISIF) and activities of daily living (LFISA). Significant correlations of 0.46 (p = 0.004) and 0.26 (p = 0.004) were found between the LFISIF and the DAS28, respectively.

Disclosure: The authors have declared no conflicts of interest.

Table 1. Temporal and spatial foot pressure variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>RA Participants</th>
<th>Control Participant</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean</td>
<td>N Mean</td>
<td></td>
</tr>
<tr>
<td>Left Value of peak pressure (kPa)</td>
<td>144 576.1 (50.7)</td>
<td>44 460.8 (152.4)</td>
<td>0.227</td>
</tr>
<tr>
<td>Left Time of peak pressure (s)</td>
<td>144 0.7 (0.2)</td>
<td>44 0.5 (0.1)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Left Force-time integral (N.ms)</td>
<td>144 494.8 (164.3)</td>
<td>44 298.2 (49.7)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Right Value of peak pressure (kPa)</td>
<td>144 571.7 (292.1)</td>
<td>44 453.2 (177.4)</td>
<td>0.006</td>
</tr>
<tr>
<td>Right Time of peak pressure (s)</td>
<td>144 0.7 (0.2)</td>
<td>44 0.4 (0.1)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Right Force-time integral (N.ms)</td>
<td>144 480.4 (145.8)</td>
<td>44 298.8 (68.0)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

OP82. IMPROVING SKILL-MIX IN RHEUMATOLOGY: HIGH QUALITY OF CARE FROM AN INDEPENDENTLY PRESCRIBING RHEUMATOLOGY PHARMACIST PRACTITIONER
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Background: A wider range of healthcare professionals can now prescribe the full range of medicines for patients in all specialties. However, there are no previously published data on the quality of care delivered by pharmacists who prescribe within rheumatology.

The objective of this study was to assess the impact of an independent prescribing rheumatology pharmacist practitioner (RPP) on the quality of care provided to rheumatology outpatients.

Disclosure: The authors have declared no conflicts of interest.

OP83. MEASURING THE IMPACT OF FOOT DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS: IMPLEMENTING ANTI TNFα BIOTHERAPY USING THE FEET IMPACT SCALE
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Background: The Leeds Foot Impact Scale (LFIS) is a self-completed foot health outcome tool designed for patients with rheumatoid arthritis (RA). The questionnaire is reliable, disease specific scale for measuring the impact of foot disease consisting of 51 items in two domains: impairment/footwear (LFISIF) and activity/participation (LFISAP).

Methods: Patients with RA commencing new anti TNFα biologic therapies were asked to complete the LFIS and the DAS 28 score was calculated for each patient. This data was collected approximately 6 months later.

Results: 58 patients (40 females: 18 males) completed the LFIS questionnaire and had a DAS 28 score calculated at baseline. The mean follow up time was 6.4 months. The patients had a mean age of 50 years and mean disease duration of 10.8 years. 27 patients started infliximab, 25 patients etanercept and 6 patients adalimumab. The LFISIF baseline score was 11.2 ± 5.0 and follow up score was 9.8 ± 5.5 (t = 3.5; P = 0.001). The LFISAP baseline score was 18.5 ± 8.9 and follow up score was 15.3 ± 9.8 (t = 2.8; P = 0.007). The DAS 28 baseline score was 6.24 ± 1.02 and follow up score was 4.23 ± 1.60 (t = 7.2; P = 0.0001). The relationship (Spearman’s rho) between change in DAS 28 and change in the total LFIS was 0.44 (P = 0.0008). The effect size of the LFISIF, the LFISAP and the DAS 28 were 0.67, 0.83 and 1.29 respectively.

Conclusions: There is a strong correlation between longitudinal change in the DAS 28 score and change in the LFIS scores. Although a significant improvement is seen in the LFIS domain with the use of anti TNF therapy, there is more improvement in the LFISAP domain which is consistent with the disease activity improvement seen in the DAS 28 scores. Previous assessment of joint activity in the feet has not added significant value in the evaluation of disease activity using the DAS 28. Other outcome measures such as the HAQ and SF-36, like the DAS 28 are not foot specific and not routinely used by orthopaedic and foot health services. This study demonstrates that the LFIS is a responsive tool in a situation where clinical improvement is anticipated and it provides additional information on the impact of foot disease in patients with RA.

Disclosure: The authors have declared no conflicts of interest.

References
OP94. AN AUDIT ON SERUM 25-HYDROXY VITAMIN D IN A RHEUMATOLOGY OUT-PATIENT CLINIC
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Background: Vitamin D deficiency is increasingly recognised as a major concern amongst the general population. The consequences of hypovitaminosis D are postulated to extend beyond osteomalacia and rickets to include ischaemic heart disease, autoimmune disease and inflammatory arthritis. There are no agreed audit standards available, however an Australian working party (2005) has recommended that vitamin D levels be measured in the following high risk groups:

1. Age >70 years
2. Malabsorption syndrome
3. Skin disease (inc SLE) precluding prolonged exposure to sunlight
4. Skin colour (pigmented)

The aims of our audit were firstly, to identify how many requests for vitamin D levels met these guidelines; secondly, to compare levels between these patients and those who had their vitamin D checked but who did not meet the guidelines; thirdly, to assess the suitability of these guidelines for use on out patient population.

Methods: A total of 263 requests for serum vitamin D from April 2007 to March 2008 were identified from the Vitamin D laboratory records and cross-referenced with the rheumatology clinical database. Demographic details were obtained along with diagnosis, blood biochemistry and treatment at the time of the blood test request. Analysis was performed using STATA 9 and non-parametric tests. A 25-OHVD deficiency was defined as <10 ng/ml and insufficiency 11-20 ng/ml.

Results: From 263 requests, 236 patients were identified (27 records excluded – no agreed audit standards available, however an Australian working party (2005) has recommended that vitamin D levels be measured in the following high risk groups; secondly, to compare levels between these patients and those who had their vitamin D laboratory more effectively met. Furthermore, those providing the service would be better informed and supported within this environment.

Conclusion: The authors have declared no conflicts of interest.

Disclosure: The authors have declared no conflicts of interest.

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