THU0632-HPR DETERMINANTS OF HAPPINESS AND QUALITY OF LIFE IN PEOPLE WITH SYSTEMIC SCLEROSIS: A STRUCTURAL EQUATION MODELLING APPROACH

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Background: In recent years more attention has been given to patients reported outcomes (PROs). Systemic sclerosis (SSc) is no exception. As there is no effective treatment or cure to SSc, it is important to recognize the relevance to patients of the different features of the disease to improve quality and enjoyment of life: the ultimate targets of therapy. Remarkably lacking in PROs is the evaluation of the overall perspective of subjective well being, equivalent to 'happiness' or 'positive psychological dimensions'.

Objectives: To examine the determinants of happiness and quality of life (QoL) in patients with SSc with emphasis on disease activity, disease impact and personality traits.

Methods: This is an observational, cross-sectional and multicenter study from six rheumatology clinics in Portugal. A total of 113 patients with SSc with a complete set of data on disease activity, disease impact, personality, quality of life and happiness were included.

Structural equation modelling (latent variable structural model) was used to estimate the association between the variables using a maximum likelihood estimation with Satorra-Bentler's correction and performed with STATA® 15.0. Two hypotheses were pursued: H1 – Disease activity and impact of disease are negatively associated to overall QoL and happiness; H2 – 'Positive' personality traits are related to happiness both directly and indirectly through perceived disease impact.

Results: Results obtained in the structural equation measurement model indicated a good fit [$\chi^2/df=1.44$; CFI=0.93; TLI=0.90; RMSEA=0.06] and supported all driving hypotheses (Figure 1). Happiness was positively related to 'positive' personality ($\beta=0.45$, $p=0.01$) and, to a lesser extent, negatively related with impact of disease ($\beta=-0.32$; $p=0.01$). This impact, in turn, was positively related to EUSTAR activity score ($\beta=0.37$; $p<0.001$) and mitigated by 'positive' personality traits ($\beta=-0.57$; $p<0.001$). Impact of disease had a much stronger relation with QoL than with happiness ($\beta=-0.78$, $p<0.001$). Quality of life and happiness had no statistically significant relationship.

Figure 1 – Estimated standardised direct effects for the proposed model.

Conclusion: Optimization of QoL and happiness in people with SSc requires effective control of the disease process. Personality and its effects upon the patient's perception of the disease impact, seems to play a pivotal mediating role in these relations and should deserve paramount attention if happiness and enjoyment of life is taken as the ultimate goal of health care.

Disclosure of Interests: Tânia Santiago: None declared, Eduardo Santos: None declared, Ana Catarina Duarte: None declared, Patrícia Martins: None declared, Marlene Sousa: None declared, Francisca Guimarães: None declared, Soraia Azevedo: None declared, Raquel Ferreira: None declared, Miguel Guerra: None

declared, Ana Cordeiro Consultant of: Ana Cordeiro has acted as a consultant for Roche, Speakers bureau: Ana Cordeiro has received speaker fees from Boehringer Ingelheim, Lilly, and Vitoria, Inês Cordeiro: None declared, Sofia Pimenta: None declared, Patrícia Pinto: None declared, Maria Joao Salvador: None declared, José Antonio P. da Silva Grant/research support from: Pfizer, Abbvie, Consultant of: Pfizer, AbbVie, Roche, Lilly, Novartis
DOI: 10.1136/annrheumdis-2020-eular.3946

THU0633-HPR CORE MUSCLE ENDURANCE IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Background: It is stated that the muscles responsible for spinal stability around the trunk show long-term activity at low intensity in daily life, therefore, endurance insufficiency can cause loss of functionality and spinal stabilization and may induce pain (1).

Objectives: The primary purpose of this study was to compare the core muscle endurance of individuals with AS with the core muscle endurance of healthy individuals. The secondary aim of the study was to examine the association between core muscle endurance and balance, disease activity, spinal mobility, functional status, physical activity level and fatigue in individuals with AS.

Methods: The research is a cross-sectional study. 41 patients with AS and 40 healthy controls were included in the study. The core muscle endurance of both groups was assessed with trunk extension test, trunk flexion test, right and left side plank tests (2). In addition, in the AS group relationship between core endurance and balance, thoracic kyphosis angle, disease activity, functionality, spinal mobility, physical activity and fatigue was examined. Balance was evaluated with BIODEX Balance Systems and thoracic kyphosis angle was evaluated with a digital inclinometer. Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Metrology Index (BASMI), International Physical Activity Questionnaire (IPAQ), Fatigue Severity Scale (FSS) were used to assess disease activity, functionality, spinal mobility, physical activity and fatigue respectively.

Results: Significant differences were found between AS group and control group in core endurance were summarized in Table 1. Additionally, significant relationships were observed between core endurance and all the assessed parameters except thoracic kyphosis angle ($p<0.05$), (Table 2).

Table 1. Comparison of Core Endurance between AS and Control Groups

	AS Group (n=41) Median (IQR)	Control Group (n=40) Median (IQR)	P
Trunk Extensor Test (sec)	44.0 (12.0–77.5)	98.25 (63.75–120.0)	<0.001
Trunk Flexor Test (sec)	41.0 (15.0–66.0)	93.0 (55.85–120.0)	<0.001
Dominant Side Plank Test (sec)	29.0 (9.8–62.0)	43.27 (28.57–68.25)	0.046
Non-Dominant Side Plank Test (sec)	32.0 (10.0–61.32)	41.25 (25.0–62.37)	0.092

$p>0.05$, Mann-Whitney U Test; AS: Ankylosing Spondylitis, IQR: Interquartile Range sec: seconds

Table.2 Association between core endurance and other parameters

	Trunk Extensor Test	Trunk Flexor Test	Dominant Side Plank Test	Non-Dominant Side Plank Test
Pain (VAS)	-0.535*	-0.339*	-0.369*	-0.203
Stiffness (VAS)	-0.496*	-0.234	-0.377*	0.224
Overall Stability Index	-0.480*	-0.488*	-0.725*	-0.702*
BASFI	-0.505*	-0.441*	-0.562*	-0.574*
BASMI	-0.587*	-0.390*	-0.613*	-0.501*
BASDAI	-0.468*	-0.202	-0.433*	-0.345*
Kyphosis Angle(°)	-0.262	-0.287	-0.215	-0.258
IPAQ	-0.354*	-0.355*	-0.523*	-0.451*
FSS	-0.545*	-0.445*	-0.542*	-0.502*

*: Spearman's Correlation Coefficient (rho), $p<0.05$; VAS: Visual Analog Scale, BASDAI: Bath Ankylosing Spondylitis Disease Activity Index, BASFI: Bath Ankylosing Spondylitis Functional Index, BASMI: Bath Ankylosing Spondylitis Metrology Index, IPAQ:International Physical Activity Questionnaire, FSS: Fatigue Severity Scale

Conclusion: Core muscle endurance is lower in patients with AS and it is in relation with many factors regarding the disease. The use of these tests may provide additional information about the patients' situation for clinicians.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.5685

THU0634-HPR KNEE EXTENSOR MUSCLE STEADINESS IN RELATION TO MAXIMAL TORQUE AND PHYSICAL FUNCTIONING IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Background: Osteoarthritis (OA) of the knee is characterized by knee pain and limitations in daily activities. Muscle weakness is associated with these characteristics, quantified as maximal voluntary muscle torque (MVT). The quality of muscle contraction is presented by fluctuations observed on a torque-time curve and the extent of these fluctuations is referred to as muscle steadiness. Whether muscle steadiness is associated with maximal muscle torque and consequently with pain and activity limitations is unknown.

Objectives: To determine the association of knee extensor muscle steadiness with MVT and to explore the association of muscle steadiness with physical functioning in subjects with knee OA.

Methods: Baseline data of 172 patients out of 177 patients with knee OA, who participated in the VIDEX trial (trial registration number, NL47786.048.14), were used for this study. Maximal voluntary knee extension torque (MVT) was assessed using an isokinetic dynamometer. Torque-time curve data were processed into (i) coefficient of magnitude of torque variance (CV) in percentage (%), (ii) frequency of torque variance as peak power frequency (PPF) in Hertz (Hz) and (iii) MVT in Newton meters (Nm). Physical functioning was assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) questionnaire, the Get-Up & Go (GUG) test, the 6-minute walk test (6MWT) and the Stair climb up & down test. Correlation and Regression analyses were performed to determine associations. Sex, age, BMI, KL-grade, knee alignment and pain were considered as potential confounders.

Results: Lower CV and PPF, reflecting better muscle steadiness, were significantly associated ($p < 0.01$ and $p < 0.05$, respectively) with higher MVT, but associations were weak. Regression analyses showed a significant association of lower CV with better physical functioning on the WOMAC ($p < 0.05$), also after correction for relevant confounders. The association with WOMAC was confounded by pain, but not by sex, age and BMI. No associations of CV with the GUG test, the 6MWT and the Stair climb up & down test were found. PPF was not significantly associated with physical functioning.

Conclusion: This is the first explorative study of muscle steadiness in relation to physical functioning in knee OA patients. Muscle steadiness is, to some extent, related to better physical functioning, but this is not consistent across all measures of physical functioning in this study. There seems to be some relationship, but it is weak and needs further exploration. No previous studies comparing clinical scores to muscle steadiness in knee OA were found to compare our results. Studies on muscle steadiness are needed to improve our understanding on this aspect of muscle torque.

References: N/A

Disclosure of Interests: Anuja Satam: None declared, Marike van der Leeden: None declared, Arjan de Zwart: None declared, Simon Verberne: None declared, Jim Schrijvers: None declared, Joost Dekker: None declared, Willem Lems: Grant/research support from: Pfizer, Consultant of: Lilly, Pfizer, Jaap Haarlaar: None declared, Martin van der Esch: None declared

DOI: 10.1136/annrheumdis-2020-eular.3690

THU0635-HPR PREVALENCE AND CLINICAL CHARACTERISTICS OF NEOPLASIA AMONG A COHORT OF PATIENTS WITH SYSTEMIC SCLEROSIS

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Background: Patients with Systemic Sclerosis (SSc) have increased risk of malignancy compared to general population. The specific risk factors and

underlying physiopathological mechanisms are still unknown, although some studies suggest that a relationship between malignancies and certain antibodies can exist. Lung, breast and hematological cancers are the most frequently seen among these patients.

Objectives: To describe the prevalence of malignancies in a cohort of SSc patients and analyze the epidemiological, clinical and immunological characteristics

Methods: A retrospective observational study was conducted at a tertiary-level university hospital, including a cohort of patients with SSc (ACR/EULAR 2013 criteria). The main variable was neoplasia prevalence and also, malignancy type, age, evolution of the SSc at the time of diagnosis and mortality were collected. Regarding SSc, demographic data, clinical and immunological characteristics, organ involvement, capillaroscopy findings and presence of other autoimmune diseases were collected.

Results: A 15% of the 98 patients with SSc presented malignancies (80% women). The mean age at the time of diagnosis was 57 ± 15 years old (table 1). The frequency of cancer was: 40% breast, 13% colon, 7% ovary and lung. 2 patients died (1 breast, 1 lung). The limited subtype (ISSc) was the most frequent (80%) and 33% showed overlap syndrome (26% Sjögren syndrome). Regarding clinical manifestations: 67% had telangiectasia, 33% pitting scars, joint and digestive involvement. Most frequently seen antibodies were: 67% anti centromere (ACA) and 20% anti topoisomerase (ATA). None of the patients presented anti-ARN polymerase III (ARN-pol), and 13% had none of them (triple negative). Active and early capillaroscopy patterns were seen in a 46% and 27%. SSc and cancer were diagnosed in less than 5 years difference among a 33% of the cohort. A relationship between age and cancer was detected ($p = 0.042$). Patients with neoplasia were a mean of 10 years older than those without malignancies (IC95%: 1-19 years)

Table 1.

	SSc with neoplasia n= 15(%)	SSc without neoplasia n= 83(%)
Female	12 (80)	76 (92)
Mean age*(n; DE)	57(15)	52(17)
Pre-scleroderma	1 (7)	11 (13)
Limited	12 (80)	54 (65)
Diffuse	2 (13)	12 (15)
SINE	0	6 (7)
Overlap syndrome	5 (33)	14 (17)
Sjögren	4 (27)	10 (12)
MCTD	1 (7)	2 (2)
Rheumatoid Arthritis	1 (7)	3 (4)
Myositis	1 (7)	0
Clinical manifestations		
Telangiectasia	10 (67)	41 (49)
Pitting Scars	5 (33)	11 (13)
Joint	5 (33)	27 (33)
Digestive	5 (33)	33 (40)
Digital ulcers	4 (27)	11 (13)
Calcinosis	4 (27)	12 (14)
ILD	3 (20)	16 (19)
PAH	3 (20)	8 (10)
Cardiac	3 (20)	4 (5)
Muscular	2 (13)	3 (4)
Puffy Fingers	2 (13)	24 (29)
Renal	0	2(2)
Antibodies		
ACA	10 (67)	46 (55)
ATA	3 (20)	12 (14)
Anti-ARN	0	4 (5)
Triple negative	2 (13)	23 (28)
Capillaroscopy		
Early	4 (27)	19 (23)
Active	7 (46)	39 (47)
Late	0	3 (4)
Treatment		
Calcium antagonists	11 (73)	52 (63)
PPIs	7 (46)	33 (40)
Corticosteroids	8 (53)	24 (29)
DMARD	5 (33)	26 (31)

* $P < 0.05$ test t-student

MCTD (Mixed Connective Tissue Disease), ILD (Interstitial Lung Disease), PAH (Pulmonary Artery Hypertension), Triple negative (anti ARN, ACA and ATA negative antibodies), PPI (Proton Pump Inhibitor), ACE inhibitors (Angiotensin Converting Enzyme inhibitors), ARBs (Angiotensin II Receptor Blockers), DMARD (Disease-Modifying Anti-Rheumatic Drugs).

Conclusion: Our study showed a similar prevalence of the most frequent neoplasia among patients with SSc compared to general population (around 15%). This prevalence is similar to other series. The only epidemiological factor related to neoplasia was the age; a major proportion of ISSc was detected but without statistical significance. In a third of the patients there were less than 5 years