detected in 50% of ACPA-positive RA, 20% of ACPA-negative RA, and in 37% of non-RA controls ($p < 0.0001$). Notably, this antibody response was citrulline-specific, as the antibody response against the arginine-containing control peptide RPP3 was significantly lower in all subsets ($p < 0.0001$). Among 55 mAbs from gingival tissue, 14 (25%) unique clones were CPP3-reactive, of which 4 showed cross-reactivity with RPP3. Interestingly, 4 out of 14 (29%) CPP3-reactive clones also bound citrullinated peptides derived from human α -enolase, filaggrin and histone 4, demonstrating cross-reactivity between a bacterial epitope and human epitopes on a monoclonal level.

Conclusions This study shows that a substantial proportion of systemically healthy individuals possess ACPAs directed against *P. gingivalis*, and these ACPAs also bind epitopes on human proteins. Based on our data, we propose that the ACPA response may be triggered by *P. gingivalis* via an antibody response against CPP3, which cross-reacts with human citrullinated proteins by mechanisms of molecular mimicry.

Disclosure of Interest None declared.

P043

INFECTION WITH CITRULLINATING PORPHYROMONAS GINGIVALIS CAN INDUCE AUTOIMMUNITY TO HUMAN RIBOSOMAL PROTEINS

¹M Jennings, ¹B Marklein, ²Z Konthur, ²U Nonhoff, ¹G-R Burmester, ¹K Skriner*.

¹Department of Rheumatology and Clinical Immunology, Charité University Medicine, Berlin;

²Max-Planck-Institut für Kolloid- und Grenzflächenforschung, Max Planck Institute, Potsdam, Germany

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Career situation of first and presenting author Young investigator.

Introduction *Porphyromonas gingivalis* (P. g.) is involved in triggering self-reactive immune responses when citrullinating bacterial or human proteins. However, first evidence to link anti-ribosomal T and B cells responses to rheumatoid arthritis (RA) has been published but the mechanism is still not clear.¹ Infection based autoimmunity induced by citrullination of human proteins with P. g. peptidyl arginine deiminase from RA patient (RA-PPAD) and crossreactivity binding induced by P. g. was investigated using affinity purified RA patient antibodies and a monoclonal antibodies to cit-RA-PPAD.

Objectives Antibodies to RA-PPAD isolated from an RA patients (RA-PPAD) was first time linked to target specific citrullinated ribosomal proteins.

Methods Screening of RA sera was conducted on 37.830 unique human proteins on protein microarrays (<http://www.engine-gmbh.de>) with 30 RA sera. The autoantibody response to 840 different proteins was recorded and bioinformatically evaluated. Protein arrays were citrullinated with PAD2,4, rabbit PAD and RA-PPAD. Sera and affinity purified antibodies were used to detect reactivity to 840 autoantigens.

Results A human protein microarray consisting of 840 indentified autoantigens from RA patients was modified by human PAD2 and PAD4, rabbit PAD, and RA-PPAD from P. g. Using cit specific monoclonal antibodies we identified the ribosomal proteins (RP), RPL18a, RPS27a, modified by PAD2, RPL18a and MRPS11 modifies by Pad4, and RPL7L1 modified by rabbit PAD specifically targeted. In addition 6 RA patient sera and 3 osteoarthritis (OA) control sera were used to identify the citrullinated RA-PPAD specific modified autoantigens not targeted when modified by human PAD2 or PAD4 or rabbit

Pad. We identified the RA-PPAD citrullinated ribosomal Proteins RPL3, RPL21, RPS24, RPL9, RPL15, RPS24.RPS3a, MRPL28 specifically targeted by RA patients. This identifies ribosomal proteins as major specific RA-PPAD citrullination targets. Moreover, affinity purified antibodies bound to native and citrullinated RA-PPAD from 6 RA patient sera and 3 OA patient sera were tested for crossreactivity on citrullinated human proteinarray. Antibodies to citrullinated ribosomal proteins MRPS11, RPL21, RPS3a, RPL18a, RPS27a, MRPL28 were detected in the RA group but not in the OA control group.

Conclusions Failure of *Porphyromonas gingivalis* clearance in RA patients leads to infection induced enzymatic mimicry based autoreactivity targeting evolutionary conserved human ribosomal proteins. Autoimmunity to ubiquitous self-antigens may trigger localized tissue damage in RA.

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Disclosure of Interest None declared.

P044

EFFECT OF SPECIALIZED 6-MONTH ADL TRAINING WITH SUBSEQUENT A 6-MONTH FOLLOW-UP PERIOD IN PATIENTS WITH MYOSITIS – PRELIMINARY DATA

¹M Spiritovic*, ²S Oreska, ²H Storkanova, ¹B Hermankova, ³P Cesak, ⁴A Rathouska, ²K Kubinova, ²M Klein, ²L Vernerova, ²O Ruzickova, ²H Mann, ²K Pavelka, ²L Senolt, ²J Vencovsky, ²M Tomcik. ¹Department of physiotherapy, Faculty of Physical Education and Sports, Charles University, Prague, Czech Republic; ²Department of Rheumatology, 1st Faculty of Medicine, Charles University, Institute of Rheumatology, Prague, Czech Republic; ³Department of Human Movement Laboratory, Faculty of Physical Education and Sports, Charles University, Prague, Czech Republic; ⁴Institute of Rheumatology, Prague, Czech Republic

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Career situation of first and presenting author Student for a master or a PhD.

Introduction Idiopathic inflammatory myopathies (IIM) are accompanied by muscular weakness caused by inflammation and immune changes in affected muscles, resulting in reduced quality of life. The aim of our study was to determine the effect of ADL training on muscle strength and endurance and quality of life of IIM patients.

Objectives The study included a total of 50 IIM patients who fulfilled the Bohan and Peter 1975 criteria and had skeletal muscle involvement. 27 patients were recruited into the intervention group (IG) and 23 patients into the control group (CG). Both groups received an educational material for home exercise, but only the IG underwent a 6 month intervention with a subsequent 6 month follow-up period.

Methods Patients were assessed by a physician and a physiotherapist blinded to intervention at months 0, 3, 6, and 12, and parameters evaluating quality of life, muscle strength and endurance were recorded. Patients also filled out PRO (patient reported outcomes) questionnaires and provided blood for routine laboratory analysis and bio-banking. Data analysis was performed between groups and within the group.

Results Compared to the observed statistically significant deterioration in the CG over the intervention period of 0–6 months, we found a statistically significant improvement in the IG in objectively assessed strength and endurance of muscles as well as in subjectively assessed functional abilities

and depression. During the follow-up period, there was a significant deterioration or stagnation of the achieved positive results in the IG. However, improved functional ability during the intervention period persisted in the IG in the follow-up period as well. Only numerical improvements in the IG during the intervention compared to the numerical deterioration in CG, that did not reach statistical significance, were observed in some subjectively assessed domains of QoL (SF-36) and fatigue (FIS – in physical dimension).

Conclusions Our specialized ADL training led to a significant improvement in the observed parameters that was clinically significant in a substantial proportion of patients, and prevention of the expected worsening of muscle weakness and quality of life.

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Disclosure of Interest None declared.

P045

EFFECT OF SPECIALIZED 6-MONTH PHYSICAL-OCCUPATIONAL INTERVENTION WITH SUBSEQUENT 6-MONTH FOLLOW-UP PERIOD IN PATIENTS WITH SCLERODERMA – PRELIMINARY DATA

¹M Spiritovic*, ²H Smucrova, ³S Oreska, ³H Storkanova, ¹B Hermankova, ⁴P Cesak, ²A Rathouska, ³O Ruzickova, ³K Pavelka, ³L Senolt, ³J Vencovsky, ³R Becvar, ³M Tomcik.
¹Department of physiotherapy, Faculty of Physical Education and Sports, Charles University, Prague, Czech Republic; ²Institute of Rheumatology, Prague, Czech Republic, Prague, Czech Republic; ³Department of Rheumatology, 1st Faculty of Medicine, Charles University, Institute of Rheumatology, Prague, Czech Republic; ⁴Department of Human Movement Laboratory, Faculty of Physical Education and Sports, Charles University, Prague, Czech Republic, Prague, Czech Republic

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Career situation of first and presenting author Student for a master or a PhD.

Introduction Systemic sclerosis (SSc) is accompanied by stiffness and contraction of tissue, predominantly of the skin, caused by fibrosis and resulting in reduced quality of life. The aim of our study was to determine the effect of specialized physical-occupational intervention (POI) on hand/face function and strength, and quality of life of SSc patients.

Objectives The study included a total of 55 patients who fulfilled the EULAR/ACR criteria for SSc (2013) and had skin involvement leading to hand-function impairment and mouth handicap. 25 patients were recruited into the intervention group (IG) and 30 patients into the control group (CG). Both groups received educational material for home exercise, but only the IG underwent a 6 month intervention with a subsequent 6 month follow-up period.

Methods Patients were assessed by a physician and a physiotherapist blinded to intervention at months 0, 3, 6, and 12, and parameters evaluating hand/face and quality of life were recorded. Patients also filled out PRO (patient reported outcomes) questionnaires and provided blood for routine laboratory analysis and bio-banking. Data analysis was done between groups and within the group.

Results Compared to the observed statistically significant deterioration in the CG, we found a statistically significant improvement in the IG in objectively assessed function and strength of hand, distance between incisors and lips and functional ability (SHAQ). Only numerical improvements in the IG during the intervention compared to numerical deterioration in CG that did not reach statistical significance were observed

in subjectively assessed hand function and mouth handicap, functional ability (HAQ) and in some domains of QoL (SF-36) and fatigue (FIS—in cognitive function). During the follow-up period, there was a significant deterioration or stagnation of the achieved positive results in the IG.

Conclusions Our specialized POI intervention led to a significant improvement in the observed parameters that was clinically significant in a substantial proportion of patients, and prevention of the expected worsening of hand/face function and strength and quality of life.

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P046

NECROSTATIN-1 AMELIORATES NEUTROPHILIC ASTHMA BY INHIBITING NEUTROPHIL RELEASE NETS

¹X Han, ¹H Jie, ²J Wang, ¹J Zhang, ¹J He, ¹C Yu, ¹E Sun*. ¹Department of Rheumatology and Immunology, The Third Affiliated Hospital, Southern Medical University; ²Pneumology department, The first affiliated hospital, Southern Medical University, Guangzhou, China

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Career situation of first and presenting author Student for a master or a PhD.

Introduction Neutrophilic asthma is Corticosteroid-resistant and increases the burden of global health care. Multiple studies have indicated that there are a large amount of neutrophil extracellular traps (NETs) in the airways of neutrophil asthmatics.¹ Although NETs are able to entrap and kill pathogens, extensive accumulation of NETs which aggravate the condition of asthmatics and promote the progression of the disease.² However to our knowledge, the mechanisms by which NETs influence the progression of asthma have not been clearly elucidated and neutrophilic asthma requires novel effective therapeutic strategies.

Objectives We sought to explore the underlying mechanisms of NETs aggravate the severity of asthma, and to investigate a new strategy of effective treatment against corticosteroid-insensitive neutrophilic asthma.

Methods Mouse models of neutrophil-dominated asthma and phorbol ester (PMA) aggravated neutrophil asthma were used in this study to clarify the role of NETs in the pathogenesis of neutrophil asthma. Neutrophil release NETs was detected in bronchoalveolar lavage fluid (BALF) of neutrophil-dominated asthma. Finally a small molecule Necrostatin-1 (Nec-1) which has been shown to inhibit neutrophil release NETs was tested for its therapeutic effects against neutrophilic airway inflammation.

Results NETs could induce human epithelium human bronchial epithelial cell death and detachment *in vitro* study. NETs significantly increased in neutrophil asthma model and PMA aggravated neutrophil asthma. *In vivo* studies, Nec-1 could relieve airway hyperresponse, also reduced total protein, myeloperoxidase activity and inflammatory cytokines. Histological examination of the lungs also showed that Nec-1 markedly reduced the inflammation. We further explored that Nec-1 could induce human neutrophils and mice BALF neutrophils apoptosis. BALF and lung tissue immunofluorescence showed neutrophils increased expression of cleaved-caspase.³

Conclusions NETs could damage airway epithelium and trigger inflammatory responses. Nec-1 inhibit neutrophil release NETs ameliorates neutrophil airway inflammation. May be