Results: Over a mean 4.06±1.07 years of follow-up, there were 132 (15.7%) deaths. In men, after adjustment for age, BMI, smoking, physical activity, alcohol, diabetes, dyslipidemia, cardiovascular event, recurrent falls, 25OHD and PTH, the presence of sarcopenia (OR 11.36, 95% CI: 2.21–58.37, p=0.004) and visceral fat mass (OR 1.99 95% CI: 1.38–2.87, p<0.001, for each 100g-increase) significantly increased all-cause mortality risk, while FMI was associated with decreased mortality risk (OR 0.48, 95% CI: 0.33–0.71, p<0.001). Similar results were observed for cardiovascular mortality in men: sarcopenia (OR 14.84, 95% CI: 5.15–47.72, p<0.001), visceral fat mass (OR 1.66, 95% CI: 1.31–2.10, p<0.001) and FMI (OR 0.57,95% CI: 0.43–0.76, p<0.001). In women, only sarcopenia was predictor of all-cause (OR 62.88, 95% CI: 22.59–175.0, p<0.001) and cardiovascular death (OR 74.54, 95% CI: 9.72–571.46, p<0.001).
Conclusions: Sarcopenia and fat distribution are associated with all cause and cardiovascular mortality risk in elderly, and they are different according to sex. Visceral fat and subcutaneous fat have opposite roles on mortality risk in elderly men, and this is distinct from what is observed in young adults.These findings point to the risk of encouraging weight loss in the elderly aiming young adult goals. Furthermore, DXA seems to be a promising tool for evaluation risk of mortality in elderly, since it is easily applicable in clinical practice.
References:
[1] Thibault R, Pichard C. Ann Nutr Metab 2012.
[2] M Zamboni, G Mazzali, E Zoico, et al. International Journal of Obesity 2005.
[3] Yves Rolland, Adeline Gallini, Christelle Cristini, et al. Am J Clin Nutr 2014.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.2224

AB1125 PREDICTION OF CHRONIC DAMAGE IN SYSTEMIC LUPUS ERYTHEMATOSUS BY USING MACHINE-LEARNING MODELS

F. Ceccarelli[1], M. Sciandrone[2], C. Perricone[1], G. Galvan[2], F. Morelli[2], L.N. Vicente[3], I. Leccese[1], L. Massaro[1], E. Cipriano[1], F.R. Spinelli[1], C. Alessandri[1], G. Valesini[1], F. Conti[1]. *[1]Lupus Clinic, Reumatologia, Dipartimento di Medicina Interna e Specialità Mediche, Sapienza Università di Roma, Roma; [2]Dipartimento di Ingegneria dell'Informazione, Università di Firenze, Firenze, Italy; [3]Departemento de Matematica, Universidade de Coimbra, Coimbra, Portugal*

Background: The increased survival in Systemic Lupus Erythematosus (SLE) patients implies the development of chronic damage, occurring in up to 50% of cases after a follow-up of 10 years. Its prevention is a major goal in the SLE management. During the last years, it has been suggested that Artificial Neural Networks (ANNs) could be a useful prediction tool in medical *scenarios*, by using patients' data as inputs and the specific outcomes as outputs. The International Conference on Advanced Computing and Communication Systems in 2015 underlined the possible application of sophisticated data analysis tools, such as machine learning methods, in SLE patients, in the light of their potential application to diagnostic and prediction purposes.
Objectives: In the present study, we aimed at predicting chronic damage in a large monocentric SLE cohort by using neural networks.
Methods: For the present analysis, we used data from 413 SLE patients (1997 ACR criteria; M/F 30/383; mean age ± SD 46.3±11.9 years; mean disease duration ± SD 174.6±112.1 months, mean follow-up period ±SD 63.9±30.7 months). At each visit, the patients underwent a complete physical examination and clinical and laboratory data were collected in a standardized, computerized, and electronically filled form. All the patients were evaluated at least twice per year. Autoantibodies and complement serum levels were also registered. Chronic damage was assessed by the SLICC/ACR Damage Index (SDI). We applied Recurrent Neural Networks (RNNs) as a machine-learning model to predict the risk of chronic damage. The clinical data sequences registered for each patient during the follow-up were used for building and testing the RNNs. We used 27 clinical and laboratory items for the mathematical model.
Results: At the first visit, 35.8% of patients had an SDI≥1, with a mean±SD value of 1.7±1.1. For the RNN model, two groups of patients were analyzed: patients with SDI=0 at the baseline, developing damage during the follow-up (N=38), and patients without damage (SDI=0). In particular, in the first group, we used all the visits before the development of damage, and in the second group, we considered patients with at least 5 visits and a follow-up of 2 years. We created a mathematical model with an AUC value of 0.77, able to predict damage development. A threshold value of 0.35 (sensitivity 0.74, specificity 0.76) seems able to identify patients at risk to develop damage.
Conclusions: We applied RNNs to identify a prediction model for SLE chronic damage. By using longitudinal data, including laboratory and clinical items, we created a mathematical model able to identify patients at higher risk to develop chronic damage.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5331

AB1126 CITRULLINATION OF PROTEINS, SMOKING AND RHEUMATOID ARTHRITIS

G. Belakova[1], V. Manka[1], P. Racay[2], E. Zanova[3]. *[1]MEDMAN s.r.o; [2]Biochemistry Department/Commenius University, Martin; [3]Department of Rheumatology, Piestany, Slovakia*

Background: Rheumatoid arthritis (RA) is an inflammatory disease characterized by chronic synovitis and erosive destruction of articular cartilage and bone ultimately leading to joint deformities, disability, loss of quality of life and work loss. There are multiple risk factors, both environmental and genetic, that may predispose an individual to developing RA. Cigarette smoking is the most important risk factor. Citrulline contained within proteins is created post-translationally by the action of the enzyme peptidyl arginine deiminase on the aminoacid arginine. Citrullination takes place in several normal cellular processes, including inflammation, apoptosis, and cellular differentiation. Additionally, tissues involved in inflammation have increased levels of citrullinated proteins. Smoking may lead to increased formation of citrullinated proteins, which in the appropriate genetic background leads to autoimmunity to citrullinated proteins and subsequently the development of clinically apparent RA. This model of RA development is compelling at least in terms of anti-citrullinated peptides antiodies (ACPA) positive RA that occurs in smokers, although the specific anatomic sites and mechanisms by which smoking leads to ACPA generation and RA have yet to be elucidated.
Objectives: To evaluate the prevalence of tobacco smokers in different sub-groups of patients with RA. Sub-groups were formed according to the combination of positivity and negativity of ACPA and rheumatoid factor (RF).
Methods: We examined patients with rheumatoid arthritis. We performed examination of ACPA and RF at the baseline. We formed 4 sub-groups of patients with rheumatoid arthritis: ACPA positive and RF positive, ACPA positive and RF negative, ACPA negative and RF positive, ACPA negative and RF negative. We collected data from medical history concerning smoking status in each individual patient.
Results: The total number of 290 patients with rheumatoid arthritis was examined. There were 50 patients in the sub-group with ACPA positivity and RF positivity, 19 of them were smokers (38%, n=50). There were 13 patients in the sub-group with ACPA positivity and RF negativity, 5 of them were smokers (39%, n=13). There were 97 patients in the sub-group with ACPA negativity and RF positivity, 28 of them were smokers (29%, n=97). There were 130 patients in the sub-group with ACPA negativity and RF negativity, 28 of them were smokers (21%, n=130. The highest prevalence of smokers was in the sub-group of patients with ACPA and RF positive rheumatoid arthritis (39%) and ACPA positive and RF negative rheumatoid arthritis (38%). The prevalence of smokers in ACPA negative sub-groups of patients with rheumatoid arthritis is significantly lower.
Conclusions: We confirmed that prevalence of smokers is significantly higher in the sub-group of patients with ACPA positive rheumatoid arthritis than in the sub-group with ACPA negative rheumatoid arthritis. Quitting smoking is highly recommended especially to these patients in order to achieve a favorable effect on the course of the disease.
References:
[1] Maria J H de Hair, et al. Smoking and overweight determine the likehood of developing rheumatoid arthritis. Ann Rheum Dis 2013;72(10):1654–1658.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.5405

AB1127 HEALTH LOCUS OF CONTROL IN SYSTEMIC LUPUS ERYTHEMATOSUS – A CROSS-SECTIONAL ANALYSIS OF THE LULA-COHORT IN GERMANY 2013

G. Chehab[1], J.G. Richter[1], R. Brinks[1], R. Fischer-Betz[1], B. Winkler-Rohlfing[2], M. Schneider[1]. *[1]Policlinic of Rheumatology and Hiller Research Unit Rheumatology, Medical Faculty, Heinrich-Heine-University, Duesseldorf; [2]German Lupus Self-Help Community, Wuppertal, Germany*

Background: Health Locus of Control (HLC) is the degree to which individuals believe that their health is controlled by internal (self-responsibility) or external factors (healthcare professionals or chance). This generalized expectancy might affect different disease aspects, especially in chronic diseases.
Objectives: Our objective was to assess the influence of HLC on different disease aspects in a representative sample of German systemic lupus erythematosus (SLE) patients.
Methods: The LuLa-Study is a longitudinal survey on a multitude of SLE associated factors that is being conducted annually by means of a self-reported questionnaire among members of the German LE self-help community since 2001 and is ongoing. Inclusion criteria are a diagnosis of SLE and returning the completed paper questionnaire. Amongst others medication, health-related quality of life (Short-Form-12), damage (Brief index of lupus damage) and disease activity (Systemic Lupus Activity Questionnaire) are surveyed. In 2013 we additionally inquired about the health locus of control (HLC) that distinguishes between the "internal" HLCint (self-responsibility) and the two external dimensions HLCdoc and HLCchance considering their doctor respectively chance responsible for personal health. A high HLC was assumed for values above the upper quartile of the specific scales. Accessory questions examined fatigue (Fatigue severity scale), medication adherence (Morisky medication adherence scale), and illness perception (Brief illness perception questionnaire).