calculated the incident rate of all fractures. After dividing the patients according to the use of GCs, we compared baseline characteristics and fracture-free survival between two groups. We compared accuracies of TBS, BMD, clinical risk factors for fracture and their combinations for predicting new fractures using areas under the receiver operator characteristic (ROC) curve (AUC).

Results: A total of 14 fractures in 12 patients were occurred among 100 patients during follow-up (428.8 person-years): 9 among the 44 in GC users and 5 in 56 GC non-users. Incidence of fracture was not different between two groups (log-rank test, $p=0.27$). AUC for incident fracture prediction of TBS alone [AUC 0.54, 95% confidence interval (CI) 0.35–0.72] was comparable with TBS combined with L-spine BMD (AUC 0.54, 95% CI 0.36–0.71) or with hip BMD (AUC 0.55, 95% CI 0.37–0.73). Accuracy for prediction of new fracture is increased when TBS was combined with age and history of previous fracture (AUC 0.74, 95% CI 0.62–0.85). In GC users, history of previous fracture alone (AUC 0.79, 95% CI 0.62–0.97) showed the best accuracy for predicting new fracture among TBS, BMD, clinical risk factors for fracture and their combinations.

Conclusions: TBS combined with age and previous history of fracture showed the highest accuracy for predicting new fracture compared to TBS or BMD alone or their combinations in RA patients. In GC users, history of previous fracture alone showed the highest accuracy for predicting new fracture.

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AB1122 ALL-CAUSE OF HOSPITAL MORTALITY IN PATIENTS WITH RHEUMATOID ARTHRITIS AND LUPUS ERYTHEMATOSUS IN A UNIVERSITY HOSPITAL DURING 1998 TO 2014

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Background: All-cause and cause-specific mortality is increased in patients with systemic lupus erythematosus (SLE) and Rheumatoid Arthritis (RA) when compared to the general population. Mortality can be attributed to the disease per se, side effects of drugs and effect of comorbidities. The survival of patients has improved over the past years when compared to historical controls

Objectives: The objective is to describe all-cause of mortality in patients with SLE and RA in a university hospital.

Methods: This is an observational, descriptive, and cross-sectional study. We included all patients with SLE and RA hospitalized during 1998 to 2014. The cause of death was obtained from medical records and classified according to International Classification of Diseases (ICD)-10. We made a descriptive analysis of all-cause of mortality of both diseases.

Results: We analyzed 1,330 medical records, of which 215 died in hospital. The respiratory insufficiency was the most common mortality diagnosis in both diseases (RA 29%, SLE 24.1%), followed by sepsis (RA 25%, SLE 20.4%). The all-cause of mortality of SLE and RA are shown in Table 1. Of the 467 RA hospital admissions, the 5.1% died, and of the 863 SLE hospital admissions, the 22.1% died.

Table 1. Mortality of RA and SLE

Year	RA		SLE	
	Hospital admissions, n=467	Deaths, n=24	Hospital admissions, n=863	Deaths, n=191
1998–99	18 (3.9)	3 (25)	57 (6.6)	12 (47.4)
2000	22 (4.7)	0 (0)	21 (2.4)	4 (19)
2001	14 (3)	0 (0)	36 (4.2)	5 (13.9)
2002	17 (3.6)	0 (0)	22 (2.5)	2 (9.1)
2003	26 (5.6)	0 (0)	65 (7.5)	22 (33.8)
2004	33 (7.1)	1 (3.03)	40 (4.6)	9 (22.5)
2005	28 (6)	1 (3.57)	64 (7.4)	32 (50)
2006	27 (5.8)	0 (0)	39 (4.5)	7 (17.9)
2007	34 (7.3)	0 (0)	33 (3.8)	9 (27.3)
2008	40 (8.6)	2 (5)	49 (5.6)	19 (38.8)
2009	28 (6)	0 (0)	53 (6.1)	8 (15.1)
2010	24 (5.1)	7 (29.17)	60 (7)	10 (16.7)
2011	27 (5.8)	0 (0)	51 (5.9)	9 (17.6)
2012	31 (6.6)	2 (6.45)	80 (9.3)	9 (11.3)
2013	41 (8.8)	6 (14.63)	88 (10.2)	15 (17)
2014	40 (8.6)	2 (5)	66 (7.6)	16 (24.2)
2015	17 (3.6)	0 (0)	39 (4.5)	3 (7.7)

RA: Rheumatoid arthritis, SLE: Systemic Lupus Erythematosus.

Conclusions: Advances in the diagnosis and treatment of SLE and RA, have decreased the morbidity and mortality of the two diseases. Infectious and cardiovascular pathologies were the most frequent causes of death.

Disclosure of Interest: None declared

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AB1123 POOR ASSESSMENT OF RISK OF OSTEOPOROSIS AFTER A FOREARM FRACTURE IN WOMEN: A HEALTH INSURANCE DATABASE STUDY IN THE LOIRE VALLEY REGION (FRANCE)

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Background: Bone Mineral density (BMD) assessment is a useful tool to evaluate bone fragility and is largely recommended in patients at risk of osteoporosis. We have previously reported in 250 women aged 50 year-old or more that only ~10% of them had a BMD after a forearm fracture (1).

Objectives: Herein, we evaluated BMD assessment and prescription of anti-osteoporotic drugs after a forearm fracture in women after 50 year-old in a large population database.

Methods: We identified all forearm fractures in women aged 50 years old or more in the "Centre-Val de Loire, France" area between 01/01/2011 and 31/12/2012, using the National Health Insurance database which cover both private and public sectors of the whole population. We analyzed the reimbursement and determinants of BMD assessment such as age, consumption of drugs inducing osteoporosis, anti-osteoporotics drugs and long term illnesses.

Results: We identified 4120 women with a forearm fracture during the study period. Among them, 546 (13.25%) had a BMD assessment performed at a median time of 4 months after the fracture. Women who had had a BMD were significantly younger than those who had not (67.44 years versus 74.63 years: OR=0.941 CI95% (0.932–0.949)). Anti-aromatase treatment was positively associated with BMD assessment (OR=3.233 (CI95%: 1.976–5.290)) while corticosteroid were not (OR=0.866 (CI95%: 0.601–1.247)). Among the women who had a BMD assessment, 168/546 (30.77%) had an anti-osteoporotic drug initiated after the forearm fracture, versus 231/3574 (6.46%) in those who had no BMD performed ($p<0.05$).

Conclusions: In this large population, less than 15 percent of women over 50 year-old have a BMD assessment after a forearm fracture. BMD assessment was associated with anti-osteoporotic drugs initiation.

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Disclosure of Interest: None declared

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AB1124 EFFECT OF SARCOPENIA, SUBCUTANEOUS ADIPOSE TISSUE AND ABDOMINAL VISCERAL FAT ON MORTALITY RISK OF COMMUNITY-DWELLING OLDER ADULTS: A POPULATION-BASED PROSPECTIVE COHORT STUDY IN BRAZIL

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Background: Body composition changes resulting from ageing (decreased muscle mass and increased fat tissue) are frequently not accompanied by concomitant changes in body mass index (BMI). Thus, BMI has low accuracy to estimate death risk attributed to changes in body composition in the older adults¹. Currently, the best method for body composition analysis in routine clinical practice is dual energy X-ray absorptiometry (DXA)². However, the few studies on body composition by DXA and mortality risk in elderly have some limitations, such as analysis not compartmentalized (subcutaneous and visceral tissues) of body fat and appendicular muscle mass not adjusted for fat mass³.

Objectives: We sought to investigate the association between body composition by DXA (including visceral fat measurement) and mortality in a longitudinal, prospective, population-based cohort of elderly subjects.

Methods: 839 community-dwelling subjects (516 women, 323 men), ≥65 years, were assessed by questionnaire on clinical data, laboratory exams and body composition by DXA using Hologic QDR 4500A equipment. DXA APEX software computes visceral adipose tissue (VAT) by subtracting the subcutaneous adipose tissue (SAT) from the total android fat. All analyses were performed at baseline. Total body fat was expressed by fat mass index (FMI) [(total body fat (kg)/height² (m)]. Sarcopenia was defined as low appendicular muscle mass adjusted for fat. Mortality was recorded during 4 year-follow-up. Multivariate logistic regression was used to compute odds ratios for all-cause and cardiovascular mortality.

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.

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

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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 $\pm$ SD 46.3 ± 11.9 years; mean disease duration $\pm$ SD 174.6 ± 112.1 months, mean follow-up period $\pm$ 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 $\pm$ 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

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AB1126 CITRULLINATION OF PROTEINS, SMOKING AND RHEUMATOID ARTHRITIS

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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 amino acid 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 antibodies (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.

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

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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).