CE-13   **IS FRAILTY A RELEVANT CONCEPT IN LUPUS?**

[1]Patricia Katz*, [2]James Andrews, [1]Edward Yelin, [1]Jinoos Yazdany. [1]Department of Medicine, University of California San Francisco, CA, USA; [2]University of Washington, Seattle, WA, USA

Background Frailty, a clinical syndrome of weight loss, weakness, slowness, exhaustion, and inactivity, has been examined primarily in geriatric populations, and is associated with poor health outcomes, including mortality. Components of the frailty syndrome are relevant to lupus, but frailty has not been examined in lupus.
Materials and methods Subjects participated in a research visit in 2008–2009. Frailty was measured according to five components defined by Fried (2001): unintentional weight loss, slow gait (based on 4-metre walk using sex and height criteria), weakness (based on grip strength using gender and BMI criteria), exhaustion (2 specific questions), and inactivity (based on physical activity questionnaire). Accumulation of 3+ components classifies an individual as "frail," one or two components as "at risk," and none as "robust." Outcomes examined were physical function, cognitive function, and mortality. Physical function was measured with the SF-36 Physical Functioning subscale (scored 0–100) and the Valued Life Activities (VLA) disability scale (scored 0–3). Cognitive functioning was measured with a 12-test battery. Each test was classified as "impaired" if the score was below -1.0 SD of age-adjusted population norms. Subjects were classified as cognitively impaired if they were impaired on $\geq$one third of indices completed. Mortality was determined as of December 2015. Differences in function and two-year changes in function were examined using multiple regression analyses controlling for age, lupus duration, race/ethnicity, glucocorticoid use, obesity, self-reported disease activity and damage, and, for longitudinal analyses, baseline function. Mortality analyses controlled for age, lupus duration, and baseline disease damage scores. Analyses include women (n = 138).
Results Mean age was 48 ($\pm$ 12) years, mean lupus duration was 16 ($\pm$ 9) years. 65% were white, non-Hispanic. 24% of the sample was classified as frail, and 48% as pre-frail. Frail women had significantly worse physical functioning than both robust and pre-frail women and were more likely to have cognitive impairment (Table 1). Frail women were also more likely to experience declines in functioning and onset of cognitive impairment. Ten women died during the follow-up period. Mortality rates were significantly higher in the frail group (frail 16.7%; pre-frail 4.1%; robust 2.3%). Odds (95% CI) of death for frail women were elevated, even after adjusting for age, lupus duration, and baseline disease damage (5.1 [0.5, 51.3]).

Conclusions Prevalence of frailty in this sample of women with lupus was more than double that reported in older adults. Frailty was associated with poor physical and cognitive function, functional declines, and mortality.

CE-14   **IMPROVED SURVIVAL IN SYSTEMIC LUPUS ERYTHEMATOSUS: A POPULATION-BASED STUDY**

[1,2]J Antonio Aviña-Zubieta*, [2,3]Sharan K Rai, [2]Eric C Sayre, [2,4]Hyon K Choi, [1,2]John M Esdaile. [1]Division of Rheumatology, Department of Medicine, University of British Columbia, Vancouver, British Columbia, Canada; [2]Arthritis Research Canada, Richmond, British Columbia, Canada; [3]Experimental Medicine, Department of Medicine, University of British Columbia, Vancouver, British Columbia, Canada; [4]Division of Rheumatology, Allergy and Immunology, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts, United States of America

Background Systemic lupus erythematosus (SLE) is associated with an increased risk of mortality. However, recent mortality trends in SLE are unknown, particularly at the general population level. Our objective was to assess mortality trends among SLE patients between January 1, 1997 and December 31, 2012 in a general population context.
Materials and methods Using an administrative health database from the province of British-Columbia, Canada (population ~ 4.5 million), we identified all incident cases of SLE and up to 10 (3were selected) non-SLE controls matched based on sex, age, and calendar year of study entry, between 1997 and 2012. The SLE cohort was then divided in two cohorts based on year of SLE diagnosis (i.e., 1997–2004 and 2005–2012) to evaluate changes in mortality over time. We calculated hazard ratios (HR) for death using Cox proportional hazard models and the rate difference using an additive hazard model, while additionally adjusting for possible confounders (i.e., Charlson Comorbidity Index, number of outpatient visits, hospitalizations, cardiovascular disease medications, glucocorticoids and NSAIDs at baseline).
Results The early cohort (1997–2004) of SLE patients had a considerably higher mortality rate than the late cohort (2005–2012) (i.e., 67.33 cases vs. 25.98 cases per 1000 person-years). In contrast, only a moderate improvement was observed in comparison cohorts between the two periods (11.39 to 7.23 per 1000 person-years, respectively). The corresponding absolute mortality rate differences were 40.3 (95% CI: 33.0, 47.7) and 6.4 (95% CI: 2.9, 9.9) cases per 1000 person years (p-value for interaction < 0.001). The corresponding adjusted HRs for mortality were 3.95 (95% CI: 3.24, 4.83) and 2.41 (95% CI: 2.01, 2.89), respectively (p for interaction < 0.001).

Abstract CE-13 Table 1   Functioning by frailty classification: Cross-sectional and longitudinal analyses

Frailty index classification	Cross-sectional, multivariate			Longitudinal, multivariate		
	VLA mean difficulty	SF-36 PF	Cognitiveimpairment	VLA mean difficulty	SF-36 PF	Cognitiveimpairment
Robust (n = 42, 28%)	— (reference)	—(reference)	— (reference)	— (reference)	— (reference)	— (reference)
Pre-frail (n = 66, 48%)	0.32 (<0.0001)	−5.3 (0.0009)	2.0 (0.6, 6.5)	0.09 (0.07)	−2.1 (0.24)	4.4 (0.4, 50.4)
Frail (n = 30, 4%)	0.65 (<0.0001)	−11.7 (<0.0001†)	4.4 (1.01, 19.6)	0.32 (0.001)	−8.0 (0.002)	26.2 (1.0, 716.4)

* p-value from analysis of variance For VLA and SF-36PF, values are beta (p-value) from multiple linear regression For cognitive impairment, values are odds ratio (95% confidence interval) from multiple logistic regression Cross-sectional multivariate analyses controlled for age, duration, low education, race, oral steroids, obesity, Systemic Lupus Activity Questionnaire (SLAQ), and Brief Index of Lupus Damage (BILD) Longitudinal analyses: Baseline frailty component/category predicting change in function 2 years later. Controlled for age, duration, low education, race, oral steroids, obesity, SLAQ, BILD, and baseline value of function