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

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**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 ≥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 (± 12) years, mean lupus duration was 16 (± 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

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**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

| | Cross-sectional, multivariate | | | Longitudinal, multivariate | | |
|---|---|---|---|---|---|---|
| **Frailty index classification** | **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

**Abstract CE-14 Table 1** Incidence Rates and Hazard Ratios (HR) for associations between SLE and death according to cohort

| | SLE status | N | Deaths | Mean follow-up (years) | Incidence rate (per 1000 person-years) | Age, sex and entry-time matched IRR (95% CI): | Fully adjusted HR (95% CI): |
|---|---|---|---|---|---|---|---|
| **Overall** | Yes | 5,304 | 821 | 4.65 | **33.28** | 3.56 (3.23, 3.93) | **2.80 (2.49, 3.16)** |
| | No | 15,912 | 836 | 5.63 | 9.34 | 1.00 | 1.00 |
| **Female** | Yes | 4,521 | 611 | 4.81 | **28.11** | 3.60 (3.21, 4.03) | 2.77 (2.41, 3.18) |
| | No | 13,563 | 603 | 5.69 | 7.82 | 1.00 | 1.00 |
| **Male** | Yes | 783 | 210 | 3.75 | **71.52** | 3.80 (3.14, 4.59) | 2.95 (2.33, 3.75) |
| | No | 2,349 | 233 | 5.27 | 18.84 | 1.00 | 1.00 |
| **1997–2004** | Yes | 1,656 | 334 | 3.00 | **67.33** | 5.91 (4.96, 7.06) | **3.95 (3.24–4.83)** |
| | No | 5,022 | 209 | 3.65 | 11.39 | 1.00 | 1.00 |
| **2005–2012** | Yes | 3,630 | 287 | 3.04 | **25.98** | 3.59 (3.03, 4.26) | **2.41 (2.01–2.89)** |
| | No | 10,890 | 262 | 3.33 | 7.23 | 1.00 | 1.00 |

**Conclusions** This population-based study shows that survival of SLE patients has improved over the past decade, suggesting that new treatments and improved management of the disease and its complications may be providing substantial benefits.

## CE-15 ESTIMATED PREVALENCE OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) IN BROOKLYN, NEW YORK, A BOROUGH WITH A LARGE MINORITY AND UNDERSERVED POPULATION

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**Background** Although major improvements in morbidity and mortality have occurred over the last half century, lupus remains a chronic disease with many unmet needs. Using an evidence based approach to identifying the efficacy of new therapeutic modalities, one must conduct randomised clinical trials with rigorous attention to design. Epidemiologic studies of SLE indicate clearly that there are both racial/ethnic and socioeconomic differences in pathophysiology, clinical outcome, and response to therapy. The target population for future trials must include significant representation from minority and disadvantaged patients. Brooklyn, with its rich diversity of racial/ethnic and socioeconomic communities, is an ideal environment for this goal. We therefore sought to assess the overall prevalence of SLE in Brooklyn, identifying the sociodemographic characteristics of its varied neighbourhoods and health care centres.

**Materials and methods** To estimate the overall prevalence of diagnosed SLE in Brooklyn, we used 2015 population statistics derived from Truven Health Analytics, Inc. Data is supplied for each zip code in Brooklyn, specified by race/ethnicity (White non-Hispanic, Black non-Hispanic, Asian non-Hispanic, Hispanic, and all others), gender, and age (0–14, 15–17, 5-year groups from age 18–64, and >65). Data for each zip code included household income and educational level. To calculate the expected number of SLE patients residing in each zip code, we extrapolated from recent age-standardised prevalence rates by race and gender from the CDC-sponsored Manhattan Lupus Surveillance Study (presented at American College of Rheumatology Annual Meeting, November 2015).

**Abstract CE-15 Table 1** Estimated number of SLE patients, age 16–65, residing in Brooklyn, 2015

| | White | Black | Hispanic | Asian | Total |
|---|---|---|---|---|---|
| Female | 259 | 709 | 269 | 126 | 1364 |
| Male | 17 | 85 | 32 | 16 | 151 |
| TOTAL | | | | | 1515 |

**Results** Based on 2015 population statistics, there are an estimated 1515 adult SLE patients residing in Brooklyn (Table 1). The Bedford-Stuvesant and Bushwick neighbourhoods have a heavy concentration of African Americans, with the West Indian community including individuals predominantly from Jamaica, Haiti, and Guyana located largely in Canarsie, Flatbush, and East Flatbush. Asian Americans, mostly Chinese, tend to settle in Southern Brooklyn, while immigrants from Arab countries are concentrated in BayRidge in southwest Brooklyn, and Eastern European and Soviet immigrants in the Coney Island, Brighton Beach, and Sheepshead Bay areas. There is a strong overlap between the predicted high neighbourhood prevalence of SLE and Brooklyn's economically disadvantaged neighbourhoods.

**Conclusions** Identifying the Brooklyn neighbourhoods with a high prevalence of SLE patients of specific sociodemographic groups will allow us to plan culturally relevant educational programs to target their needs and encourage participation in research studies including randomised clinical trials.

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## CE-16 THE PREVENTION, SCREENING, AND TREATMENT OF CONGENITAL HEART BLOCK FROM NEONATAL LUPUS: A SURVEY OF PROVIDER PRACTICES

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**Background** There are presently no official guidelines about the prevention, screening, and treatment of congenital heart block (CHB) due to maternal Ro antibodies. The objective of this study was to survey an international sample of providers to determine their current practices.