priorities. Disease burden can be measured using a variety of indicators such as mortality, morbidity or financial cost. For SLE, despite a relatively good 10 year survival (95%, vs 97% in controls), its mortality rate remains high relative to general population mortality rate as shown in our analysis of the Centers for Disease Control (CDC)'s mortality database comprising of 62,843 SLE deaths. However, mortality rates may not adequately measure SLE burden, because among those who died, a fifth of patients died before reaching 40 years of age. Premature mortality, a measure of burden first proposed in 1940s to address the inadequacy of mortality in measuring the burden of tuberculosis, is an important way to quantify disease burden. In constructing a measure of premature death, an arbitrary limit to life is chosen, and the calculation of the difference between an age at death and this arbitrary limit is defined as the life lost as a result of that death. To assess the relative burden of SLE, we measured the years of potential life lost (YPLL) for SLE relative to CDC's top 15 leading causes of death.

Methods This is a population-based study. Death counts were obtained from the CDC-WONDER database. Number of deaths were tabulated for top 15 CDC's leading causes-of-death and SLE. To calculate YPLL, each decedent's age at death from a specific disease was subtracted from a predetermined age of 75 years. The years of potential life lost were then added together to yield the total YPLL.

Results 28 411 female SLE deaths were recorded during 2000–2015. The ranking of SLE deaths relative to the CDC's official leading-causes-of-death ranklist in females showed that SLE is within the top 15 leading causes-of-death in reproductive age women (15–44 years) and tenth among women ages 15–24 years. We calculated YPLL for SLE relative to the CDC's official 15 leading causes-of-death in women ages 15–44 and 15–24. YPLL for SLE ranked 14th in women ages 15–44, and 8th in women ages 15–24, above diabetes mellitus, HIV disease, septicemia, chronic lower respiratory disease, anemias, nephritis, and cerebrovascular disease.

Conclusions SLE is among the leading cause of YPLL in young women, underscoring SLE as an important public health issue.

CS-33 PERFORMANCE OF URINARY HER2 AS A BIOMARKER OF ACTIVE PROLIFERATIVE LUPUS NEPHRITIS

¹Patricia Costa-Reis, ²Rebecca E Sadun*, ¹Kelly Maurer, ²Laura E Schanberg, ¹Jon M Burnham, ³Emily von Scheven, ⁴Kathleen M O'Neil, ⁵Marisa S Klein-Gitelman, ⁶M Petri, ¹Kathleen E Sullivan. ¹Children's Hospital of Philadelphia, Philadelphia, PA; ²Duke University, Durham, NC; ³University of California, San Francisco, San Francisco, CA; ⁴Indiana University, Indianapolis, IN; ⁵Lurie Children's Hospital, Chicago, IL; ⁶Johns Hopkins University, Baltimore, MD

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Background Human Epidermal Growth Factor Receptor 2 (HER2) expression is increased in the kidneys of patients with proliferative lupus nephritis (LN) as well as the kidneys of the mouse model NZM2410, though it is not increased in other glomerulonephritides. Preliminary data indicated that urinary HER2 (uHER2) may be elevated in adult patients with proliferative LN (class III and class IV). This study sought to establish whether uHER2 can serve as a biomarker to predict flare of proliferative lupus nephritis in patients with systemic lupus erythematosus (SLE).

Methods We performed a multicenter prospective study of children with LN as well as a single center prospective study

of adults from Johns Hopkins; children and adults without lupus were enrolled as controls. Urine samples were collected at scheduled visits over the course of 4 years. uHER2 was measured by a commercially available ELISA and compared to two other commercially assayable prospective urinary markers of LN, TNF-like weak inducer of apoptosis (TWEAK) and vascular cell adhesion molecule-1 (VCAM-1). Active lupus nephritis was defined as the presence of one or more of the following findings: granular or red blood cell casts, >5 red blood cells/high power field with the exclusion of other causes, or proteinuria of >0.5 grams/24 hours or recent increase of >0.5 grams/24 hours.

Results One hundred children with LN were enrolled from five academic centers across the United States alongside 91 age-matched controls (mean age 15 years). Children with LN had significantly higher levels of uHER2 compared with controls ($p < 0.01$); the difference was greater for children with active LN ($p < 0.005$). uHER2/creatinine correlated with uTWEAK/creatinine ($p < 0.0001$) and with uVCAM-1/Creatinine ($p < 0.05$); uHER2 was more sensitive for flare than TWEAK and more specific for flare than VCAM-1. The adult cohort consisted of 142 SLE patients and 23 healthy controls. uHER2/creatinine levels were increased in adult SLE patients when compared to controls ($p < 0.05$) with the difference also greatest in patients with active LN ($p < 0.005$).

Conclusion This multicenter prospective study establishes uHER2 as a promising new biomarker for determination of lupus nephritis flare in both children and adults. Combined with implications for HER2 as a driver of mesangial cell proliferation through microRNA downregulation, these results provide further impetus to explore already-available HER2-inhibiting drugs, including tyrosine kinases and certain monoclonal antibodies, for the treatment of LN, such as lapatinib (Tyverb) or trastuzumab (Herceptin).

CS-34 INCREASED PREVALENCE OF NOCTURNAL HYPERTENSION AND ATTENUATED BLOOD PRESSURE DIPPING IN PEDIATRIC SLE

¹Scott E Wenderfer*, ¹J Fallon Campbell, ¹Steffy Jose, ¹Mario Archila, ²Robyn Matloff, ²Kari Mynarski, ³D Jack Weaver, ⁴Sarah Hoffman, ⁵Jessica Nelson, ⁵Mahmoud Kallash, ⁶Hermine Brunner, ⁶Mark Mitsnefes. ¹Baylor College of Medicine, Houston, TX, USA; ²New York Medical College, Valhalla, NY, USA; ³Levine Children's Hospital of Carolinas, Charlotte, NC, USA; ⁴Virginia Commonwealth University, Richmond, VA, USA; ⁵The Ohio State University, Columbus, OH, USA; ⁶Cincinnati Children's Hospital, Cincinnati, OH, USA

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Background The optimal goals for blood pressure management in SLE are unknown. Uncontrolled blood pressure is a known risk factor for cardiovascular disease. The increased cardiovascular risks associated with SLE are not fully explained by traditional risk factors, such as hypertension and dyslipidemia, at least when based on definitions established for individuals without SLE. One possibility is that the patterns of blood pressure dysregulation in SLE may differ from those in otherwise healthy individuals or patients with obesity/metabolic syndrome.

Methods The BPpSLE study is a cross-sectional multicenter analysis of blood pressure patterns in children with SLE. Inclusion criteria: ≥ 4 ACR classification criteria for SLE and age < 21 years. Exclusion criteria: intravenous steroid use within past month, glomerular filtration rate < 60 mL/1.73 m²/min, or kidney transplant. Interim analysis was performed on

the initial 52 subjects enrolled. Participants were assessed once over 24 hours by ambulatory blood pressure monitoring, using routine equipment and SpaceLabs software. Diurnal and nocturnal averages for both systolic and diastolic blood pressure were assessed, and nocturnal blood pressure dipping was calculated as difference between median awake and sleep measurements. In addition, blood pressure loads were calculated as percentages of measurements that exceeded validated, age-specific thresholds for normal blood pressure. Nocturnal hypertension was defined as systolic or diastolic load during sleep of >25%. Enrollment in the BPpSLE study is open to all interested CARRA investigators.

Results The cohort is 79% female, 29% Hispanic and 27% black. Median age was 16.3 years (IQR 13–17) at time of testing. Median SLEDAI was 4 (IQR 2–11), renal SLEDAI was 0 (IQR 0–4), and median glomerular filtration rate was 104 mL/1.73 m²/min (IQR 91–114). Nocturnal hypertension was seen in 47% and attenuated dipping was seen in 71% of children with SLE, compared to 39% and 26% of historical controls. Loads were 14% and 13% while sleeping versus 5% systolic and 6% diastolic while awake. This corresponded with median nocturnal dipping of 6% in systolic and 13% in diastolic blood pressures (normal >10%).

Conclusions There is a high prevalence of both nocturnal hypertension and attenuated nocturnal blood pressure dipping in out SLE cohort, compared to an age-matched adolescent population with borderline high blood pressure. These patterns are not due to renal failure or active nephritis. Although most SLE patients in the cohort do not meet criteria for diagnosis of hypertension, the degree of dysregulation could potentially contribute to the cardiovascular risk noted in SLE.

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CS-35

DAMAGE ACCRUAL AND HEALTH-RELATED QUALITY OF LIFE IN A COLOMBIAN COHORT OF PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

^{1,2}Sebastian Herrera Uribe*, ¹Marcela Posada Velasquez, ^{1,2}Juan Camilo Diaz-Coronado, ^{1,2,3}Adriana Rojas-Villarraga, ¹Deicy Hernández-Parra, ¹Paula Perez-Estrada, ¹Ricardo Pineda-Tamayo. ¹Clinical information group, Artmedica IPS, Medellín, Colombia; ²Internal Medicine Department, CES University, Medellín, Colombia; ³División Investigaciones, Fundación Universitaria Ciencias de la Salud FUCS, Bogotá, Colombia

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Background Systemic Lupus Erythematosus (SLE) is a chronic multisystemic autoimmune pathology of unknown etiology with a variable course and a predilection for women of reproductive age. Chronic activity and flares of disease activity are correlated with greater damage accrual and mortality. Mortality and health-related quality of life (HR-QoL) are higher in SLE patients when compared to general population. Damage accrual, duration of the disease, disease activity and involvement of specific organ systems, might relate to worse HR-QoL in SLE. A worse perception of health is associated with a higher damage accrual over time.

Methods A retrospective cohort of SLE patients (ACR 1997 or SLICC 2012 classification criteria), followed for at least 1 year, between 2015 and 2017 in a specialized center was analyzed. Activity evaluated by Systemic Lupus Erythematosus Disease Activity Index (SLEDAI), damage accrual by SLICC/

Abstract CS-35 Table 1

	SDI [‡] 0			SDI [‡] 1			SLEDAI [§] 0–4			SLEDAI [§] ≥5		
	Initial (%)	Final	p Value	Initial	Final	p Value	Initial	Final	p Value	Initial	Final	p Value
Mobility												
1	119	99	0,01	100	120	0,01	209	205	0,21	1	6	0,21
2	99	77	0,01	76	98	0,01	160	154	0,11	1	7	0,11
3	1	1	0,5	2	2	0,5	3	3	NS	0	3	NS
Personal Care												
1	166	134	0,01	129	161	0,01	278	270	0,1	2	10	0,1
2	53	43	0,01	46	56	0,02	91	88	0,2	0	3	0,2
3	1	1	0,5	3	3	1	4	4	0,5	0	4	0,5
Quotidian Activities												
1	137	114	0,01	99	122	0,01	224	217	0,26	0	7	0,26
2	80	61	0,01	73	153	0,01	139	136	0,03	2	5	0,03
3	2	2	1	7	9	1	9	8	0,5	0	1	0,5
Pain/Discomfort												
1	68	54	0,01	58	126	0,01	117	114	0,22	1	4	0,22
2	104	82	0,01	80	184	0,01	171	166	0,14	1	6	0,14
3	48	42	0,1	42	90	0,1	85	82	0,72	0	3	0,72
Anxiety/Depression												
1	115	95	0,01	99	119	0,01	199	197	0,4	2	4	0,04
2	73	61	0,01	53	126	0,01	117	113	0,26	0	4	0,4
3	29	19	0,012	26	55	0,012	53	48	0,45	0	5	0,4

[‡] Without damage
[‡] Any Damage
[§] Low activity (0 to 4)
[§] Moderate to severe activity (≥5)
[†] Mc. Nemar test.