**Methods:** We conducted a financial analysis of all admissions for systemic lupus erythematosus at the Strong Memorial Hospital between the July 1st of 2013 and June 30thof 2015. The total number of admissions for diagnosis code 710.0 was calculated based on primary or secondary diagnosis for the 2 fiscal years. The diagnosis of SLE was confirmed based on the presence of at least 4 criteria or had to be made by a rheumatologist. The age at time of admission and age when diagnosis of SLE was first made, gender, race, reason for admission and the zip code of the primary residence were recorded. Additionally, we noted the number of readmissions within a year and readmission within a 30-day period. We then determined the total cost of admissions, readmission and recorded the length of stay for all admissions and readmissions.

**Results:** The total number of confirmed cases of SLE admissions for the 2 years was 387 that comprised 202 patients. Of these 175 (45%) were due to readmissions (within a year) and 113 (29%) were readmissions within a 30 day period. The total cost of all admissions was $10,353,617 for the 2 years while the cost of readmissions was $1,772,675.00 per year. The cost of all readmissions within the 30-day period was $1,182,375 for the 2 year period. The length of stay for all SLE admissions was 1,564 days per year. Approximately, 44% of admitted patients were of American origin with 60% residing within the city of Rochester.Further analysis showed that 28 (16%) of the patients accounted for about 40% of the total cost of all admissions ($3,900,156), 45% of the length of stay, 49% of all admissions and 76% of all 30-day readmissions. These high risk patients were more likely to be younger, have earlier onset of SLE, more likely to be African American and more likely to be from within the city limits. The average cost of hospitalization for the high risk patients was $150,000 compared to $51,808 for other SLE patients. See Table

**Conclusion:** Hospitalizations of patients with SLE is a major cause for health care costs and readmission rates for SLE are high. A small group of high risk, high cost patient's account for majority of the hospitalization costs and length of stay among all SLE patient hospitalizations. A high-riskcare management plan could substantially reduce costs and improve quality of care for these patients.

| | **High risk SLE patient** | **SLE patient** |
|---|---|---|
| Average cost/patient/YEAR | $ 150,000.06 | $ 51,808.41 |
| Average LOS/patient | 48.3 days | 15.6 days |
| | | |
| Mean age (at admission) | 38.2 years | 45.5 years |
| Mean age (at initial diagnosis) | 20 years | 30.2 years |
| AA: C: A: H | 61%: 29%: 7%: 3% | 44%: 49%: 2%: 4% |
| | | |
| Females: Males | 82%:18% | 91%:9% |
| Rochester zip code | 75% | 60% |

AA: African American; C: Caucasian; A: Asian; H: Hispanic; LOS-length of stay

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**Abstract Number: 123**

# A Panel of Urinary Biomarkers to Assess Renal Involvement in Latin American Patients with Systemic Lupus Erythematosus

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**Session Date:** Sunday, November 13, 2016
**Session Title:** Healthcare Disparities in Rheumatology - Poster I
**Session Type:** ACR Poster Session A
**Session Time:** 9:00AM-11:00AM

**Background/Purpose:** Some previous studies in Caucasian, Asian, and African-american patients have shown promising results for several urinary biomarkers in patients with lupus nephritis (LN). However, information regarding urinary biomarkers in Mestizo and Afro-Latin American patients is very limited. We investigated whether levels of urinary of monocyte chemoattractant protein 1 (MCP-1), neutrophil gelatinase-associated lipocalin (NGAL), ceruloplasmin (CP), transferrin (TP) and TWEAK are good biomarkers to differentiate patients with LN among Latin American SLE patients.

**Methods:** SLE patients meeting the revised ACR classification criteria for SLE were recruited from a referral University Hospital. Urinary levels of MCP-1, NGAL, CP, TF and TWEAK were measured using a commercial ELISA kits, R&D system, Minneapolis, USA for MCP-1, NGAL and TWEAK and Assaypro, Missouri, USA for CP and TF. Serum Anti C1q antibodies were measured by ELISA (Inova, San Diego, USA). SLE activity was measured with SLEDAI. Pearson or Spearman's rank correlations were used to examine associations between continuous variables. Additionally, ROC curves were done.

**Results:** 100 SLE patients were recruited (87% female) with median age of 33.4 ± 12.4 years and median disease duration of 7.6 ± 7.3 years. Mestizo (75%) and Afro-Latin American (22%) were majority. Mean SLEDAI score was 8.8 ± 9.0 and mean SLICC was 0.3 ± 0.6. Afro-Latin American had significantly higher prevalence of LN and serositis, and higher SLEDAI scores than Mestizo patients. All urinary biomarkers and anti C1q antibodies were significantly higher in patients with LN than in patients without LN. Additionally, NGAL, CP, TF and TWEAK were significantly higher in patients with active LN than in inactive LN (Table). NGAL levels were significantly higher in Afro-latin American patients (56 ± 56 vs 35 ± 46 pg/ml, $p=0.04$). No significant differences were found in urinary biomarkers levels among proliferative and non-proliferative forms of LN. We found significant positive correlation between all urinary markers and SLEDAI (r score ranging from 0.31-0.51, $p<0.05$ for all). A ROC curve for urinary biomarkers for LN in all SLE patients showed a good level of sensitivity and specificity for all, especially for CP (AUC 0.87), TF (AUC 0.84) and TWEAK (AUC 0.78).

**Conclusion:** In our cohort, Afro-Latin American were more severely affected with higher disease activity and more LN. We found several urinary biomarkers with good discriminative power to differentiate LN in Latin American SLE patients. Those markers were moderate correlated with disease activitiy. NGAL, CP, TF and TWEAK were significantly higher in patients with active LN.

**Table. Urinary levels of several biomarkers and serum anti C1q antibodies according renal involvement and LN activity.**

| | Total SLE patients n=100 | Group A LN n=66 | Group B No LN n=44 | p value A vs B | Group C Active LN* n=36 | Group D Non-active LN N=21 | p value C vs D |
|---|---|---|---|---|---|---|---|
| **MCP-1 (mean ± SD), pg/ml** | 1678.6 ± 3722.3 | 2293.1 ± 4473.0 | 472.4 ± 596.5 | **0.015** | 1114.5 ± 1887.9 | 696.3 ± 1032.4 | 0.542 |
| **NGAL (mean ± SD), pg/ml** | 39.9 ± 48.9 | 54.4 ± 56.1 | 16.0 ± 16.6 | **<0.001** | 67.2 ± 60.8 | 20.8 ± 34.2 | **0.014** |
| **CP (mean ± SD), ng/ml** | 2618.1 ± 1392.0 | 3169.9 ± 1214.6 | 1778.4 ± 1296.2 | **<0.001** | 3640.3 ± 650.7 | 2428.3 ± 1423.1 | **0.005** |
| **TF (mean ± SD), ng/ml** | 1383.4 ± 562.3 | 1595.7 ± 397.8 | 978.8 ± 588.6 | **<0.001** | 1756.1 ± 102.0 | 1345.9 ± 583.1 | **0.001** |
| **TWEAK (mean ± SD) pg/ml** | 1552.6 ± 1666.7 | 1913.5 ± 1806.0 | 780.1 ± 1001.6 | **<0.001** | 2520.3 ± 1824 | 869.0 ± 1340.0 | **<0.001** |
| **Anti C1q (mean ± SD), IU** | 65.2 ± 75.5 | 77.9 ± 81.0 | 37.9 ± 57.5 | **0.02** | 92.2 ± 77.0 | 53.2 ± 79.7 | 0.129 |
| * Active LN defined as current 24 hrs proteinuria levels > 500 mg/dl. | 24 urine hours determination was not available | at the moment of urine biomarker | determination in 9 patients | | | | |

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**Abstract Number: 124**

# Socioeconomic-Demographic, Disease Activity, Treatment and Immunologic Variables Affect B Cell Subtypes in Systemic Lupus Erythematosus

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**Background/Purpose:** B cell subset proportions within the B cell pool, also known as B cell signatures (BCS), reflect not only systemic lupus erythematosus (SLE) disease activity status, but also therapy effects. In this study, we evaluated