

10. Lucia Zhu¹, Evelyne Vinet², Arielle Mendel², Christian A. Pineau², Fares Kalache², Louis-Pierre Grenier², Thao Huynh², Sasha Bernatsky², Karim Sacre³.

¹Université de Sherbrooke, Sherbrooke, QC, Canada; ²McGill University, Montreal, QC, Canada; ³Université Paris-Cité, Paris, France.

Trajectories of NT-proBNP in Systemic Lupus Erythematosus.

Patients with systemic lupus (SLE) are at increased risk of cardiovascular disease. N-terminal prohormone of brain natriuretic peptide (NT-proBNP), a biomarker of cardiac dysfunction, is elevated and associated with cardiovascular damage in this population. However, trajectories of NT-proBNP in SLE have not been investigated. We evaluated NT-proBNP trajectories in SLE and explored associations with demographic and clinical characteristics.

We analyzed data from the McGill SLE Research Cohort. Serum NT-proBNP levels were measured yearly from March 2022 to May 2025. We assessed the prevalence of baseline elevated NT-proBNP (≥ 133 pg/mL [1]), and associations with baseline variables: age, sex, race/ethnicity, age at SLE diagnosis, SLE duration, smoking, and SLE International Collaborating Clinics (SLICC) Damage Index. Univariate and multivariate linear regressions identified independent associations with baseline log-transformed NT-proBNP. Patients were classified into four NT-proBNP trajectories: abnormal at baseline and remaining abnormal; abnormal and normalizing; normal and becoming abnormal; normal and remaining normal. We compared baseline characteristics across trajectories using multivariate logistic regressions.

We studied 294 patients with ≥ 2 measurements. At baseline, 101 (34.4%) had elevated NT-proBNP. The mean NT-proBNP levels were 243.6 pg/mL, median 91, interquartile range, IQR 55 – 171.8. Higher levels were associated with female sex, white race, older age at SLE diagnosis, and longer SLE duration. Cardiovascular damage, renal damage, and pulmonary hypertension were also independently associated with higher NT-proBNP. Of the 101 individuals with abnormal baseline NT-proBNP, 79 (78.2%) remained abnormal at second assessment. Of the 193 with normal baseline levels, 30 (15.5%) became abnormal. No patient with a baseline level ≥ 350 normalized to < 133 . High-risk trajectories (abnormal-remaining-abnormal and normal-becoming-abnormal) were more likely to have cardiovascular damage (OR 3.90, 95% CI 1.49-12.5, renal damage (OR 2.87, 95% CI 1.61-5.51), and pulmonary hypertension (OR 32.0, 95% CI 4.59-651.1).

Over one-third of SLE patients had abnormal baseline NT-proBNP; most (78%) remained abnormal. Over 15% of those with an initially normal value became abnormal. Elevated baseline NT-proBNP and high-risk trajectories were associated with older age at diagnosis, longer SLE duration, and SLICC damage items (cardiovascular damage, renal damage, and pulmonary hypertension). Levels ≥ 350 pg/mL did not normalize over our evaluation. Future analyses will examine additional patients and time points.

References

[1.] Sacre K. *et al.*, Rheumatology 2024; 63, no. 6: 1739–1745.