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Title: Medication-related Hospitalizations in Patients with Systemic Lupus Erythematosus

Objective(s): Patients with systemic lupus erythematosus (SLE) take multiple medications, increasing their risk of adverse drug events (ADEs; harm from use of a drug or drug omission). Within a large prospective longitudinal SLE cohort, we characterized medication-related hospitalizations and their preventability.

Method(s): We studied consecutive admissions to our tertiary hospital network between 2015-2020, recording home medications, diagnoses, and outcomes. Two independent adjudicators used the Leape and Bates method, an established tool, to evaluate if a medication-related event contributed to the hospitalization, considering both ADEs and events attributed to medication non-adherence. ADEs were classified as potentially preventable or ameliorable if modifiable factors were identified, while non-adherence was always considered ameliorable. The kappa statistic assessed inter-rater reliability between the 2 evaluators; a third adjudicator aided in 7 cases. Logistic regressions (using generalized estimating equations) evaluated associations between participant characteristics and medication-related hospitalizations.

Result(s): During 2312 person-years of SLE cohort follow-up (2015-2020), 68 hospitalizations occurred among 45 participants (3 per 100 person-years). At first hospitalization, median age was 38 years (interquartile range, IQR, 27-53), median disease duration was 12 years (IQR, 6-20), 91% were women. Median number of home medications was 8 (IQR, 4-11) with 71% participants having polypharmacy (defined as taking ≥5 medications).

Twenty (29%) hospitalizations were due to ≥1 probable ADE (23 total ADEs), with infection due to immunosuppression comprising 13 (57%) events. Seven (10%) were flares from non-adherence. Adjusting for age and sex, hospitalization for ADE was associated with prednisone use (adjusted OR 3.7; 95% CI 1.1-13.0), renal involvement at diagnosis (aOR 6.5; 95% CI 2.7-15.7), use of ≥1 immunosuppressant (aOR 11.5; 95% CI 2.6-50.0), and polypharmacy (aOR 11.3; 95% CI 1.2-103.8). Eleven ADEs (48%) were preventable or ameliorable. Modifiable factors (n=12) included timely glucocorticoid tapering (25%), promptly acting on abnormal laboratory results (33%), improved communication (17%), and institution of appropriate preventative measures (thromboprophylaxis, vaccination, infection screening; 25%). Age <18 years at SLE diagnosis (OR 5.9; 95% CI 1.3-26.6) and prednisone dose (each milligram, OR 1.04; 95%CI 1.00-1.07) were univariately associated with hospitalization for a flare due to non-adherence.

Conclusion(s): In this SLE cohort, 40% hospitalizations were medication-related, of which over half were potentially preventable or ameliorable. Renal involvement, polypharmacy, and use of prednisone or immunosuppressants were associated with hospitalization for ADE.