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Infection Risk Stratification and Antimicrobial Prophylaxis in Patients with Glomerulonephritis Treated with Rituximab

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Objectives : Infection risk assessment, appropriate antimicrobial prophylaxis, and vaccinations are recommended in patients with glomerulonephritis treated with rituximab. We aimed to identify areas of suboptimal infection risk management for quality improvement.

Methods : Cross-sectional study of consecutive elective rituximab infusions between May 2022 and October 2023. Outcomes were prevalence of serum Immunoglobulin G (IgG) measurement within 3 months before rituximab infusion, virology evaluation [Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (HBsAb), Hepatitis B core total antibody (HBc), anti-hepatitis C IgG (HCV), Human Immunodeficiency Virus IgG (HIV)] and chest X-ray (CXR) within 12 months before rituximab infusion, Pneumocystis jiroveci pneumonia (PCP) prophylaxis and influenza and pneumococcal vaccination.

Results : There were 79 infusion episodes among 54 patients with glomerulonephritis and renal vasculitis (Figure 1). Median rituximab infusion cycle was 3 [interquartile range: 2, 4] at 23.8 (5.0, 52.0) months from diagnosis and 0.7 (0.5, 6.8) months from the previous rituximab infusion. Median age at infusion was 57 (37, 67) years and eGFR was 65.1 (49.2, 88.2) ml/min/1.73 m². Serum IgG, HBsAg, HBsAb, HBc, HCV and HIV were evaluated in 86.1%, 77.2%, 68.4%, 75.9%, 73.4% and 68.4% of the infusion episodes, respectively. CXR was evaluated in 72.2%. PCP prophylaxis was prescribed in 87.3%. Influenza vaccination within 12 months before infusion occurred in 18 (22.8%) episodes, while influenza and pneumococcal ever-vaccination before infusion occurred in 49 (62.0%) and 27 (34.2%) episodes, respectively. Multivariable regression adjusting for age, gender, infusion number and time from diagnosis, longer time from diagnosis was independently associated with influenza ever-vaccination (adjusted OR, aOR, 1.03, 95% CI 1.001-1.06) but not with influenza vaccination within 12 months or pneumococcal ever-vaccination. Older age was associated with IgG evaluation (aOR 1.08, 95% CI 1.01-1.15) but inversely associated with HBsAb evaluation (aOR 0.96, 95% CI 0.92-0.99).

Conclusions : Infection risk management for glomerulonephritis patients treated with rituximab should be optimized.

figure 1.jpg

Figure 1. The glomerulonephritis diagnoses were minimal change disease (19.0%), focal segmental glomerulosclerosis (8.9%), membranous nephropathy (34.2%), AAV (26.6%), lupus nephritis (7.6%) and others (3 infusions, 3.8%).

