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Clinical decision aid in cardiovascular risk evaluation and optimization: Health Initiatives in Immune-Mediated Kidney Disease: Empowering Physicians and Patients (HIKE)

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Objectives : Glomerulonephritis and its treatment are associated with cardiovascular disease (CVD), hence CVD risk recognition and optimization is imperative to reduce adverse health outcomes. In the Health Initiatives in Immune-Mediated Kidney Disease: Empowering Physicians and Patients (HIKE) program, we implemented an electronic medical records (EMR)-based physician prompt regarding cardiovascular risk. We aimed to evaluate the outcomes of the physician prompt during its pilot and early scaling.
Methods : Single-arm pre-post study of all individuals ≥40 years old with glomerulonephritis on immunosuppressants and scheduled for Glomerulonephritis and Renal Vasculitis Disease Management Clinics (July 2022 to July 2023) and two general nephrology clinics (February 2023 to July 2023). A physician prompt provided guideline-based recommendations on risk factor screening and management (Figure 1). We compared the prevalence of risk evaluation (HbA1c, fasting glucose and lipid) and optimization (renin-angiotensin system blocker, RASb, and statin prescription) before and after the physician prompt.
Results : 123 patients had 229 prompts between July 2022 and July 2023: 62, 46 and 25 patients had 1, 2 and 3 prompts, respectively. One patient with incomplete immunosuppressant data was excluded. Glycemic evaluation was performed in 84.4%, 87.3% and 92.9% of the cohort before, after one prompt and after two prompts respectively, while lipid evaluation was performed in 50.0%, 40.8% and 60.7% before, after one and two prompts respectively (Table 1). Among those without glycemic and lipid measurement before the prompt, 88.9% and 39.0% subsequently had glycemic and lipid assessed within 6 months after the prompt. Prescription of RASb and statin were 68.5% and 59.8% respectively before the prompt, then 70.4% and 66.2% at 6 months after the prompt, and 71.4% for both medications at 12 months (Table 1).
Conclusions : An EMR-based physician prompt may be a useful clinical decision aid to optimize cardiovascular risk management for at-risk individuals with glomerulonephritis.

Figure 1 Workflow.png

Figure 1. Workflow for electronic medical record-based physician prompt

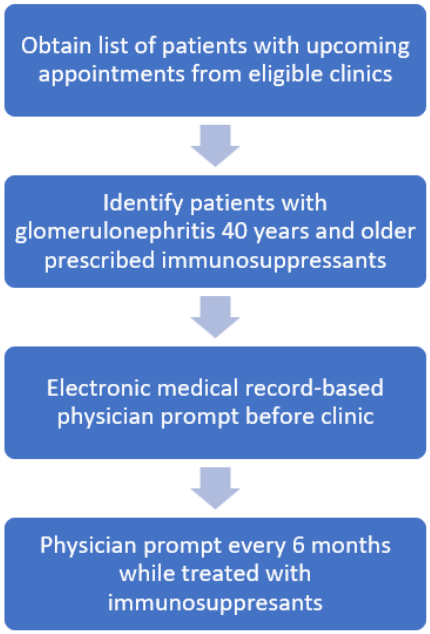

Figure 1 Workflow.png

Table 1. Cardiovascular risk evaluation in patients 40 years and older with glomerulonephritis treated with immunosuppressants

	Before prompt, N = 122	After one prompt, N = 71	P value[+]	After 2 prompts, N = 28	P value[++]
Laboratory tests					
Fasting glucose, n (%)	96 (78.7)	56 (78.9)	1.00	24 (85.7)	0.69
HbA1c, n (%)	65 (53.3)	45 (63.4)	1.00	24 (85.7)	0.45
Fasting glucose or HbA1c, n (%)	103 (84.4)	62 (87.3)	1.00	26 (92.9)	0.63
Fasting lipid, n (%)	61 (50.0)	29 (40.8)	0.06	17 (60.7)	0.77
Medications					
RASb, n (%)	87 (68.5)	50 (70.4)	0.34	20 (71.4)	0.25
Statin, n (%)	73 (59.8)	47 (66.2)	0.18	20 (71.4)	1.00

HbA1c, glycated hemoglobin; RASb, renin-angiotensin system blocker
[+]Comparison between proportion of patients with cardiovascular risk evaluation before prompt and within 6 months after prompt using McNemar Test
[++]Comparison between proportion of patients with cardiovascular risk evaluation before prompt and within 12 months after prompt using McNemar Test