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BCR-ABL TYROSINE KINASE INHIBITORS: RENAL SAFETY CONSIDERATIONS IN AFRICA

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INTRODUCTION

BCR-ABL tyrosine kinase inhibitors (TKIs) are effective for CML treatment but raise concerns about renal toxicity. There is limited data on this issue in Africa.

AIM

This study assessed the association between BCR-ABL TKIs and renal toxicities in Ethiopian patients.

METHOD

A hospital-based cross-sectional design enrolled 260 patients actively receiving BCR-ABL TKIs. %). All patients who had baseline and recent (within the past three months) renal function tests were included. Patients with incomplete documentation were excluded from the study. Baseline median creatinine level of 0.7 mg/dL (IQR: 0.6-0.8 mg/dL) and a median estimated glomerular filtration rate (eGFR) of 115 mL/min/1.73m² (IQR: 101-123 mL/min/1.73m²). Primary outcome -TKI-associated adverse renal event (ARE), which was defined as a 30% eGFR reduction from baseline or eGFR < 60 ml/min/1.73 m2, ARE that occurred for more than 90 days, the development of acute kidney injury (AKI), or the development of significant proteinuria (> 500mg/24-hour urine) after the initiation of TKI.

RESULTS

We found a statistically significant decline in eGFR of 6.365 mL/min/1.73 m² over a median follow-up of 34.5 months in patients receiving BCR-ABL TKI treatment. 13% of patients experienced AREs. Among the patients, four developed AKI, with 3 out of 4 cases occurring within the first year of TKI treatment and 1 case occurring after five years of treatment. All patients recovered from AKI. Additionally, seven patients developed CKD. The study indicated that a longer duration of TKI treatment (adjusted odds ratio [AOR] 1.009; 95% CI, 1.00-1.017; P = .034), hypertension (AOR 7.651; 95% CI, 1.483-39.479; P = .015)), HIV infection (AOR 7.599; 95% CI, 1.184-48.77; P =.033), and achieving a good treatment response (AOR 2.822; 95% CI, 1.032-7.714; P = .043) were associated with a higher risk of AREs, while male sex (AOR 0.376; 95% CI, 0.154-0.918; P = .032) was protective

Variable		ARE		AOR (95% CI)	P-Value
		Yes	No		
Age (mean + SD)		-	-	1.0309 (0.997–1.064)	1.03
Sex	Male	14	128	0.376 (0.154–0.918)	0.032
Baseline Creatinine		0.78	0.72	5.45 (0.577–51.495)	0.139
Duration of TKI therapy		66.5	45.9	1.009 (1.00–1.017)	0.034
HTN	Yes	7	7	7.651 (1.483–39.479)	0.015
HIV	Yes	2	4	7.599 (1.184–48.77)	0.033
MMR and CHR	Yes	26	139	2.822 (1.032–7.714)	0.043

CONCLUSIONS

BCR-ABL TKI is relatively safe in our study population. The study's limitations included missing data on baseline and follow-up proteinuria.

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