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Efficacy and safety of oral anticoagulants in kidney transplant recipients with atrial fibrillation

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Objectives : Atrial fibrillation (AF) is associated with increased stroke and bleeding risk in patients with chronic kidney disease (CKD) including kidney transplant recipients (KTRs). There is a limited knowledge about the use novel oral anticoagulants (NOACs) in KTRs. We investigated the efficacy and safety of DOACs in a cohort of KTRs.
Methods : In a retrospective cohort study conducted in one center, we enrolled consecutive 138 KTRs with AF on NOACs including 96 (69.6%) subjects on apixaban 10 mg/day, 29 (21.0%) on rivaroxaban 15 mg/day, 13 (9.4%) subjects on edoxaban 30 mg/day. Thromboembolic (stroke, transient ischemic attack, systolic embolism) and bleeding events (major and clinically relevant non-major bleeding) were recorded during a median follow-up of 18 months. There were no significant differences in demographic, clinical, and laboratory variables at baseline between the 3 treatment groups (Fig. 1).
Results : During follow-up period, arterial thromboembolic events occurred in 6 (6.2%) subjects on apixaban and 4 (13.8%) on rivaroxaban. Patients treated with rivaroxaban did not have a significantly higher hazard of arterial thromboembolic events when compared with those on apixaban (hazard ratio [HR] 2.11; 95% CI: 0.72-6.14, p = 0.22). Major bleeding or clinically relevant non-major bleeding occurred in 11 (11.5%) patients receiving apixaban, 3 (10.3%) patients on rivaroxaban, and 4 (30.8%) on edoxaban. When compared to rivaroxaban, the other NOACs did not significantly differ in the hazard of bleeding [apixaban: HR 0.83 (95% CI: 0.26-2.61; p = 0.65); edoxaban: HR 1.95 (95% CI: 0.42-10.29; p = 0.47)].
Conclusions : The study suggests that KTRs with AF receiving apixaban and rivaroxaban have a similar risk of thromboembolism and bleeding in the everyday practice of the kidney center. Edoxaban has been used rarely due to limited evidence about its safety and efficacy in KTRs. These findings indicate that apixaban and rivaroxaban are practical and safe options for KTRs with AF.

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Characteristics	All (n=138)	Apixaban (n=96)	Rivaroxaban (n=29)	Edoxaban (n=13)	P-value
Male, n (%)	85 (61.6%)	58 (60.4%)	19 (65.5%)	8 (61.5%)	0.98
Age, years, median (IQR)	65.2 (58.3-72.1)	65.2 (60.3-71.1)	66.0 (63.8-74.1)	59.5 (55.6-62.3)	0.25
BMI, kg/m2, median (IQR)	25.5 (22.6-27.1)	25.3 (22.5-27.1)	26.1 (23.9-28.3)	25.8 (23.1-28.1)	0.49
eGFR, median (IQR)	36.7 (31.5-42.3)	36.5 (31.5-42.3)	38.0 (28.1-46.3)	39.0 (25.5-48.1)	0.58
CHD, n (%)	86 (62.3%)	59 (61.4%)	18 (62.0%)	9 (69.2%)	0.97
Stroke/TIA history, n (%)	13 (9.4%)	9 (9.4%)	3 (10.3%)	1 (7.7%)	0.97
CHF, n (%)	73 (52.9%)	49 (51.0%)	16 (55.1%)	8 (61.5%)	0.97
HT, n (%)	114 (82.6%)	77 (80.2%)	26 (89.6%)	11 (84.6%)	0.94
Diabetes, n (%)	51 (36.9%)	37 (38.5%)	9 (31.0%)	5 (38.4%)	0.88
CHA2DS2Vasc, median (IQR)	4 (3.0-5.5)	4 (3.0-5.5)	4 (3.0-5.0)	4 (3.0-5.0)	0.42

Fig.1. Characteristics of the population.
Abbreviations: BMI - body mass index, eGFR - estimated glomerular filtration rate, CHD - coronary heart disease, CHF - chronic heart failure, HT - hypertension.