

The diabetic link: A major predictor of renal function decline in atrial fibrillation patients on direct oral anticoagulants

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ABSTRACT

Introduction: Atrial fibrillation (AF) and non-communicable diseases (NCDs) like diabetes mellitus (DM) are common comorbidities that complicating patient care. While direct oral anticoagulants (DOACs) have improved stroke prevention, concerns about their long-term effects on renal function deterioration has been documented. This study aimed to identify the incidence and key predictors, including DM, of significant renal function decline among AF patients on DOACs in an Asian population. **Materials and Methods:** This multicentre retrospective study utilised data from AF patients initiated on DOACs between 2013 and 2022 across five tertiary hospitals in Malaysia. Convenience sampling was employed. The primary outcomes were the prevalence of DM and a clinically significant decline (>30%) in estimated glomerular filtration rate (eGFR) after DOAC initiation. Logistic regression was performed to identify independent predictors of eGFR decline. **Results:** The study included 464 patients (mean age, 72.3±9.5 years; 60.8% male). The prevalence of DM was 42.5% (n=197). Clinically significant eGFR decline occurred in 55 patients (11.9%). Our analysis revealed that DM was the strongest independent predictor of renal decline [aOR 4.066, 95% CI 2.142–7.718, p<0.001]. Other significant predictors included the use of rivaroxaban (aOR 0.384, 95% CI 0.177–0.835, p=0.016), being in a non-Malay, Chinese, or Indian racial group (aOR 2.764, 95% CI 1.239–6.164, p=0.013), use of angiotensin-converting enzyme inhibitors (aOR 0.466, 95% CI 0.253–0.858, p=0.014), and duration of DOAC therapy (aOR 1.258, 95% CI 1.057–1.497, p=0.010). **Conclusion:** We found a high prevalence of DM among AF patients, and confirmed that clinically significant renal function decline is a prevalent issue in Malaysian AF patients on DOACs. The strong association with DM underscores the critical need for proactive renal monitoring and NCD management. Targeting patients with DM for early intervention and tailored therapeutic strategies may be crucial to mitigate renal deterioration and improve long-term outcomes for this high-risk population.

Keywords: Atrial Fibrillation, Diabetes, Renal Function Decline, DOAC, NCD