Direct Oral Anticoagulant Dosing for Stroke Prevention in People with Nonvalvular Atrial Fibrillation and Renal Impairment

Medscape UK X Guidelines
Primary Care Hacks

Author: Dr Kevin Fernando, GP Partner, North Berwick Health Centre; Content Advisor, Medscape Global and UK | **Email:** kfernando@webmd.net

● **No dose adjustment recommended** ● **Dose adjustment recommended** ● **Not recommended/contraindicated**

	CrCl			
	≥50 ml/min	**30–49 ml/min**	**15–29 ml/min**	**<15 ml/min**
Apixaban[1]	**5 mg bd.** Check ABC rule: **age** ≥80 years; **bodyweight** ≤60 kg; **creatinine** ≥133 mcmol/l If ≥2 factors present, reduce dose to **2.5 mg bd**		**2.5 mg bd**	
Dabigatran[2]	**150 mg bd.** Check: **age** ≥80 years and **drugs**: verapamil. If either present: **110 mg bd** If aged 75–80 years, CrCl 30–50 ml/min, GORD, or increased risk of bleeding, **consider** reduced dose of **110 mg bd**			
Edoxaban[3][A]	**60 mg od.** Check: **weight** ≤60 kg and **drugs**—ciclosporin, dronedarone, erythromycin, or ketoconazole If either present: **30 mg od**	**30 mg od**		
Rivaroxaban[4]	**20 mg od (take with or after food to increase bioavailability)**	**15 mg od (take with or after food to increase bioavailability)**		

Table based on summaries of product characteristics and the author's clinical experience and appraisal of the literature. **ABC:** age, bodyweight, and creatinine; **bd:** twice daily; **CKD:** chronic kidney disease; **CrCl:** creatinine clearance; **DOAC:** direct oral anticoagulant; **eGFR:** estimated glomerular filtration rate; **GORD:** gastro–oesophageal reflux disease; **IT:** information technology; **MHRA:** Medicines and Healthcare products Regulatory Agency; **od:** once daily.

Footnote

[A] CrCl over 80 ml/min: re-evaluate treatment choice and consider alternative. A trend towards decreasing efficacy with increasing creatinine clearance has been observed compared to well-managed warfarin with edoxaban[5]

Prescribing Notes

- A MHRA drug safety update published in 2023 re-emphasised that those on DOACs are at increased risk of bleeding, particularly older people with renal impairment. Specific DOAC reversal agents are available for dabigatran, apixaban, and rivaroxaban
- The Greater Glasgow and Clyde NHS Trust has published a blog titled, *Safe prescribing of direct oral anticoagulants (DOACs)*, which includes a patient information booklet and alert card
- **DOACs are not 'fire and forget' drugs;** renal and liver monitoring and assessment of concordance should be undertaken regularly. Frequency of monitoring and assessment will be dependent on individual patient characteristics, but should be at least **annual**
- Useful rule of thumb: if CrCl is in the 30s, recheck CrCl 3-monthly; if CrCl is in the 20s, recheck CrCl 2-monthly, and so on. See the Specialist Pharmacy Service's *DOACs (direct oral anticoagulation) monitoring* for further advice regarding DOAC monitoring
- **Do not use eGFR** to assess the degree of renal impairment; eGFR was originally intended for the diagnosis and staging of CKD, whereas CrCl should be used for drug dosing, especially high-risk drugs or those with a narrow therapeutic index, such as DOACs
- CrCl is calculated automatically within many GP IT systems. There also online calculators (e.g. QxMD) and many free apps (e.g. MedCalX). Use actual bodyweight from the last 12 months in these calculations up to bodyweight 120 kg or BMI 40. Use adjusted bodyweight if individuals are above these thresholds.[6] See the Greater Glasgow and Clyde NHS Trust's *DOAC prescribing and body weight* blog for more information.
- As with warfarin, patients on DOACs should carry patient alert cards supplied by the hospital, dispensing chemist, or GP practice. These are included within the patient information materials in each DOAC box
- Healthcare professionals are advised to take caution when deciding to prescribe these anticoagulants to patients with other conditions, undergoing other procedures, and on other treatments, which may increase the risk of major bleeding. The following contraindications now apply to all new oral anticoagulants, for all indications and doses:
  - a lesion or condition, if considered a significant risk factor for major bleeding—see the sections on contraindications in the relevant summaries of product characteristics for further information
  - concomitant treatment with any other anticoagulant agent—see the sections on contraindications in the relevant summaries of product characteristics for further information.

References

1. *NICE. Apixaban*. British National Formulary. bnf.nice.org.uk/drugs/apixaban (accessed 6 January 2023).
2. NICE. *Dabigatran* etexilate. British National Formulary. bnf.nice.org.uk/drugs/dabigatran-etexilate (accessed 6 January 2023).
3. NICE. *Edoxaban*. British National Formulary. bnf.nice.org.uk/drugs/edoxaban (accessed 6 January 2023).
4. NICE. *Rivaroxaban*. British National Formulary. bnf.nice.org.uk/drugs/rivaroxaban (accessed 6 January 2023).
5. Specialist Pharmacy Service. *DOAC (direct oral anticoagulants) monitoring*. sps.nhs.uk/monitorings/doacs-direct-oral-anticoagulants-monitoring (accessed 6 January 2023).
6. Primary Care Cardiovascular Society. *Anticoagulation for non-valvular atrial fibrillation (NVAF) following NHSE DOAC commissioning recommendations*. pcpa.org.uk/454kgekwj545c87as234lg/FINAL_Guidance_on_prescribing_anticoagulation_in_NVAF_July_22_v2(2).pdf (accessed 7 February 2024).