CLINICAL GUIDELINES ID TAG	
Title:	Perioperative Management of Patients on Direct Oral Anticoagulants Requiring Elective Surgery or Endoscopy
Author:	Joanne Doogan
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Guideline for the Management of Direct Oral Anticoagulants (DOACs) for Patients Requiring an Elective Procedure or Endoscopy

1.0 Establish if Patient is taking a DOAC (Apixaban, Dabigatran, Edoxaban, Rivaroxaban) & assess bleeding risk of procedure

It is the responsibility of the Doctor to establish whether the patient being listed for an elective procedure is taking a DOAC and to inform the patient of the risk associated with continuing or stopping the DOAC.

At the time of listing, the 'Day-Case / Inpatient Waiting List' or 'Elective Endoscopy Waiting List' form should be completed. The Doctor must indicate that a patient is taking a DOAC by ticking the relevant section on the form. This will direct the Doctor to the Perioperative DOAC Plan for each individual drug. The bleeding risk of the procedure must be documented on the form and the Pre-Operative Assessment Nurse and Pharmacist will inform the Patient regarding when to stop their DOAC prior to procedure. The patient will be given verbal and written information.

2.0 Peri-operative management of patients once bleeding risk is known

Pre-operative management:

Pre-operative bridging with LMWH is not recommended for patients on DOACs because of their short half-life. In addition, there is evidence that mixing anticoagulants causes bleeding (BRIDGE trial).

If patient appears to have exceptionally high embolic risk and requires a high-risk procedure which cannot be delayed e.g. procedure < 3 months after VTE, then taking into account the bleeding and thrombotic risk, the time from last dose to surgery should be optimized for the individual; the reason for the deviation from standard guideline must be documented in patient's medical notes. Consider discussion with senior haematologist.

The DOACs are partly excreted by the kidneys, so half-life varies with renal function.

	Renal Function CrCl ml/min	Low Bleeding Risk	High Bleeding Risk
Dabigatran	≥80	**24 hours** (i.e. omit the day before and on the morning of the procedure)	**48 hours** (i.e. omit 2 days before and on the morning of the procedure)
	≥ 50-< 80	**48 hours** (i.e. omit 2 days before and on the morning of the procedure)	**72 hours** (i.e. omit 3 days before and on the morning of the procedure)
	≥ 30-< 50	**72 hours** (i.e. omit 3 days before and on the morning of the procedure)	**96 hours** (i.e. omit 4 days before and on the morning of the procedure)
Rivaroxaban, Apixaban and Edoxaban	≥30	**24 hours** (i.e. omit the day before and on the morning of the procedure)	**48 hours** (i.e. omit 2 days before and on the morning of the procedure)
	<30	**48 hours** (i.e. omit 2 days before and on the morning of the procedure)	**72 hours** (i.e. omit 3 days before and on the morning of the procedure)

If neuroaxial anaesthesia is likely, at booking please inform the anaesthetist that patient is on a DOAC. If an anticoagulant effect cannot be excluded neuroaxial anaesthesia should be avoided.

Endoscopy in patients on DOACs

Low Risk Procedure	High Risk Procedure
Diagnostic procedures +/- biopsy Biliary or pancreatic stenting Device-assisted enteroscopy without polypectomy Oesophageal, enteral or colonic stenting EUS without sampling or interventional therapy	Polypectomy ERCP with sphincterotomy Ampullectomy EMR/ESD Dilation of strictures Therapy of varices PEG EUS-guided sampling or with interventional therapy Oesophageal or gastric radiofrequency ablation
Omit DOAC on morning of procedure	**Take last dose of drug 3 days before endoscopy (72hrs)** For **dabigatran with CrCl 30 – 50ml/min** take last dose **5 days before** the procedure. In any patient with rapidly deteriorating renal function a haematologist should be consulted.

Post-operative management:

Following minor or low risk procedures in patients with low bleeding risk, anticoagulation can be recommenced 6-12 hours post procedure if haemostasis is achieved. DOACs should be prescribed at the patient's previous dose. Remember that when a DOAC is restarted, the patient may be fully anticoagulated within 90 minutes.

Following high risk procedures and in patients with an increased bleeding risk, or in a situation where any increased risk of bleeding is unacceptable, **defer therapeutic anticoagulation with DOACs until the bleeding risk is low**; this may be for 48 – 72 hours post-op.

Postoperatively if the patient is not ready for full anticoagulation and there is a risk for VTE, give standard VTE prophylaxis with LMWH, until therapeutic anticoagulation can resume.

3.0 References

BCSH Guideline: Peri-operative management of Anticoagulation and Antiplatelet Therapy 2016

Endoscopy in patients on antiplatelet or anticoagulant therapy: British Society of Gastroenterology (BSG) and European Society of Gastrointestinal Endoscopy (ESGE) guideline update. Gut 2021;70:1611-1628. https://gut.bmj.com/content/70/9/1611

The 2018 European heart Rhythm association practical guide on the use of non-vitamin K antagonist oral anticoagulants in patients with atrial fibrillation. Eur heart Journal (2018) 39, 1330 – 1393.

Developed by: Joanne Doogan , Anticoagulant Pharmacist date: May 2018,
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