

Non-vitamin K antagonist oral anticoagulant (NOAC) 停藥原則

FOR ELECTIVE OR PLANNED PROCEDURE

****此原則不適用於 urgent procedure****

Step 1: 評估手術/處置的出血風險 (Table 1)

Table 1. Elective procedures 的出血風險

Bleeding risk	Types of procedure
Minor	• Cataract or glaucoma intervention • Dental interventions • Endoscopy without biopsy or resection • Superficial surgery (e.g. abscess incision; small dermatologic excisions)
Low	• Angiography • Electrophysiological study or catheter ablation • Endoscopy with biopsy • Pacemaker or ICD implantation (unless complex anatomical setting, e.g. congenital heart disease) • PCI via radial artery • Prostate or bladder biopsy
High	• Abdominal or pelvic surgery • Cardiothoracic surgery • ERCP with sphincterotomy • Extracorporeal shockwave lithotripsy • Kidney biopsy • Liver biopsy • Major orthopaedic surgery • PCI via femoral artery • Polypectomy • Spinal or epidural anaesthesia; lumbar diagnostic puncture • Transurethral prostate resection

Step 2: 確認病人腎功能及使用哪種 NOAC, 以決定停藥時間 (Table 2 & 3)

- 腎功能差者應停藥較久 (特別是 Pradaxa, 因其經腎臟排除比率較高)。
- 由於 NOAC 具有穩定的藥物動力學特性, 故一般而言停藥期間不需要使用 low molecular weight heparin 作為 bridging therapy。若病人最近六星期內有發生 systemic embolism, 則可考慮使用 bridging therapy。
- Minor bleeding risk procedure: 一般而言不需要術前停藥, 服藥後 12 小時即可進行手術。可於術後 6 小時恢復使用 NOAC。

Table 2. Dabigatran (Pradaxa®) 停藥時間

	Low bleeding risk procedure	High bleeding risk procedure
CrCl $\geq$ 80 mL/min	$\geq$ 24 hr	$\geq$ 48 hr
CrCl 50–79 mL/min	$\geq$ 36 hr	$\geq$ 72 hr
CrCl 30–49 mL/min	$\geq$ 48 hr	$\geq$ 96 hr

備註: Dabigatran 不適合使用於 CrCl $<$ 30 mL/min 的病人

Table 3. Rivaroxaban (Xarelto®), Apixaban (Eliquis®), Edoxaban (Lixiana®) 停藥時間

	Low bleeding risk procedure	High bleeding risk procedure
CrCl $\geq$ 80 mL/min	$\geq$ 24 hr	$\geq$ 48 hr
CrCl 50–79 mL/min	$\geq$ 24 hr	$\geq$ 48 hr
CrCl 30–49 mL/min	$\geq$ 24 hr	$\geq$ 48 hr
CrCl 15–29 mL/min	$\geq$ 36 hr	$\geq$ 48 hr

備註: Rivaroxaban, Apixaba, Edoxaban 不適合使用於 CrCl $<$ 15 mL/min 的病人

Step 3: 評估術後開始使用 NOAC 的時機 (Table 4)

Table 4. When to restart NOAC after invasive procedure

Bleeding risk of procedure	Restart timing
Low	Post-op $\geq$ 24 hr
High	Post-op $\geq$ 48-72 hr

參考資料:

1. The 2018 European Heart Rhythm Association Practical Guide on the use of non-vitamin K antagonist oral anticoagulants in patients with atrial fibrillation. Europace. 2018 Mar 19.
2. Management of Patients on Non-Vitamin K Antagonist Oral Anticoagulants in the Acute Care and Periprocedural Setting: A Scientific Statement From the American Heart Association. Circulation. 2017 Mar 7;135(10):e604-e633.

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