



Fiona Stanley Fremantle Hospitals Group

Guideline

Management of fractured neck of femur patients taking Direct-acting Oral Anticoagulants

Reference #: FSFHG-ORTH-GUI-0002

Scope

Site	Service/Department/Unit	Disciplines
Fiona Stanley Hospital Fremantle Hospital	Orthopaedic Surgery, Ortho-Geriatrics	Medical, Nursing and Pharmacy

1. Introduction

This guideline is based on the Fragility Fracture Network (FFN) consensus guidelines and local experience, and has been agreed by FSFHG Haematology, Anaesthetics, Orthopaedics and Geriatrics. This policy outlines the management of patients with a hip fracture who are taking Direct- acting Oral Anticoagulants (DOACs).

2. Terminology

DOAC	Direct-acting Oral Anticoagulants. Some examples include: Apixaban, dabigatran and rivaroxaban.
FFN	Fragility Fracture Network

3. Guideline

Consensus guidelines have been developed by the FFN, synthesizing available evidence and expert opinion for best practice approaches in the management of hip fracture patients pre-operatively taking DOACs. Four consensus statements in patients with hip fractures and normal renal function were achieved by the FFN, namely;

- Consider performing a peripheral nerve block on presentation.
- Hip fracture surgery can reasonably be performed within 36 hours of last DOAC dose.
- General anaesthesia can be reasonably administered within 36 hours of last DOAC dose.
- Consider recommencing DOACs within 48 hours of surgery.

The bleeding risk due to DOACs must be minimised prior to urgent surgery for Hip Fracture patients. In cases of significant renal dysfunction (Creatinine Clearance less than 30mL/min) seek specialist advice and assay levels.

- DOACs include: Apixaban, dabigatran and rivaroxaban.
- Indications include treatment of Deep Vein Thrombosis (DVT) / Pulmonary Embolism (PE), non-valvular Atrial Fibrillation (AF), VTE prophylaxis (total hip or knee). For further information refer to WA Anticoagulation Chart.

4. Peri-operative Management

1. Nerve block	<ul style="list-style-type: none"> • Admit as per usual local protocol, including peripheral nerve block on presentation.
2. Stop DOAC	
3. Document	<ul style="list-style-type: none"> • DOAC name, dose, time of last dose (time = 0) • Indication for DOAC • Patient weight • Patient serum creatinine and estimated creatinine clearance (eGFR)
4. Investigations	<ul style="list-style-type: none"> • Routine preoperative blood tests including renal function (CPOE "Orthogeriatric" Admit order set)
5. If renal function normal (eGFR ≥50mL/min)	<ul style="list-style-type: none"> • Operate within 24 to 36 hours from time of last DOAC dose (time = 0) using general anaesthetic. • Usual risk/benefit approach applies to specific indications for spinal anaesthesia.
6. If renal function abnormal (eGFR <50mL/min)	<ul style="list-style-type: none"> • Check haemoglobin and specific drug level at 0600 hrs on the morning of surgery. • Discuss with Ortho-geriatric team in trauma meeting (who may call Thrombosis team for specific advice). • Surgery should proceed from DOAC perspective when DOAC blood level ≤50mng/mL <ul style="list-style-type: none"> ○ If level >50ng/mL, Ortho-geriatrics to review and give opinion on risk benefit of operating vs delaying. • Usual risk/benefit approach applies to specific indications for spinal anaesthesia. See attachment 2 for detailed discussion example.
7. Urgent Surgical Intervention	<ul style="list-style-type: none"> • Assess increased bleeding risk against surgical urgency. • If still required, seek Haematology advice for best approach to giving treatment to reduce bleeding risk.

4.1. Choice of Anaesthetic in Setting of DOAC

- Following the consensus statements for the practice and safe conduct of anaesthesia in Hip Fracture patients on DOACs, general anaesthesia makes sense for most patients.
- Timing of surgery and anaesthetic decision making is complex, nuanced and influenced by many factors, not least patient co-morbidities. Both general anaesthesia and spinal anaesthesia carry risks, but particular uncertainty arises when dealing with patients who have renal impairment in the context of significant respiratory disease/failure.
- Whilst the risk of catastrophic spinal haematoma may be increased by the delayed excretion of DOACs in patients with renal failure, this must be balanced against the significant risk of serious respiratory complications that may arise from general anaesthesia.
- There will be a small group of patients for whom general anaesthesia represents the greater threat to their quality of life/recovery and outweighs the risk of bleeding related to a spinal anaesthetic. Decision making in these patients should be multidisciplinary, evidence based and must include robust and transparent discussions with the patient, families and other care givers.
- Efforts should be made to mitigate risk of bleeding in concert with haematological input and surgery should proceed at the optimal time with consultant delivered care.

4.2. Post-operative Recommencement of DOAC

- Giving consideration to haemoglobin and bleeding risk, it may be reasonable to resume DOAC ≤ 48 hours following Hip Fracture surgery, or as agreed by Surgical/Ortho-geriatrics Team.
- Interim DVT prophylaxis should be considered as per usual post-operative guidelines.
- The Ortho-geriatric team will review whether continuing a DOAC is in the overall best interest of the patient with them or their NOK.

4.3. When to Refer to Haematology

- Haemostatic products are required, e.g. patient bleeding or surgery is not deferrable.
- Other significant haematological concerns

5. Compliance/Performance Monitoring

- The relevant NUM will be responsible for monitoring compliance with this document. Compliance will be monitored via routine clinical incident reporting.

6. Related Policy Documents

- FSFHG
 - Guideline for Pre-operative and Pre-intervention Management of Medications FSFH-HW-GUI-0012
 - Hip fragility fracture management FSH-ORTH-POL-0001

7. Related Standards

- NSQHS
 - Clinical Governance
 - Medication Safety
 - Comprehensive Care
 - Communicating for Safety

8. Bibliography

- Mitchell, R.J., Wijekulasuriya, S., Mayor, A., Borges, F.K., Tonelli, A.C., Ahn, J., Seymour, H. and (2024), Principles for management of hip fracture for older adults taking direct oral anticoagulants: an international consensus statement. *Anaesthesia*.
- Tran et al, New oral anticoagulants: a practical guide on prescription, lab testing and peri-procedural/bleeding *IMJ* 2014;44:525-536.
- Local Data from FSH using DOAC levels in NOF patients
- Clinical Excellence Commission NOAC Guidelines 2023
http://www.cec.health.nsw.gov.au/_data/assets/pdf_file/0007/326419/noac_guidelines.pdf
- Clinical Excellence Commission Anticoagulants 2024
[Anticoagulants - Clinical Excellence Commission \(nsw.gov.au\)](https://www.cec.health.nsw.gov.au/anticoagulants)

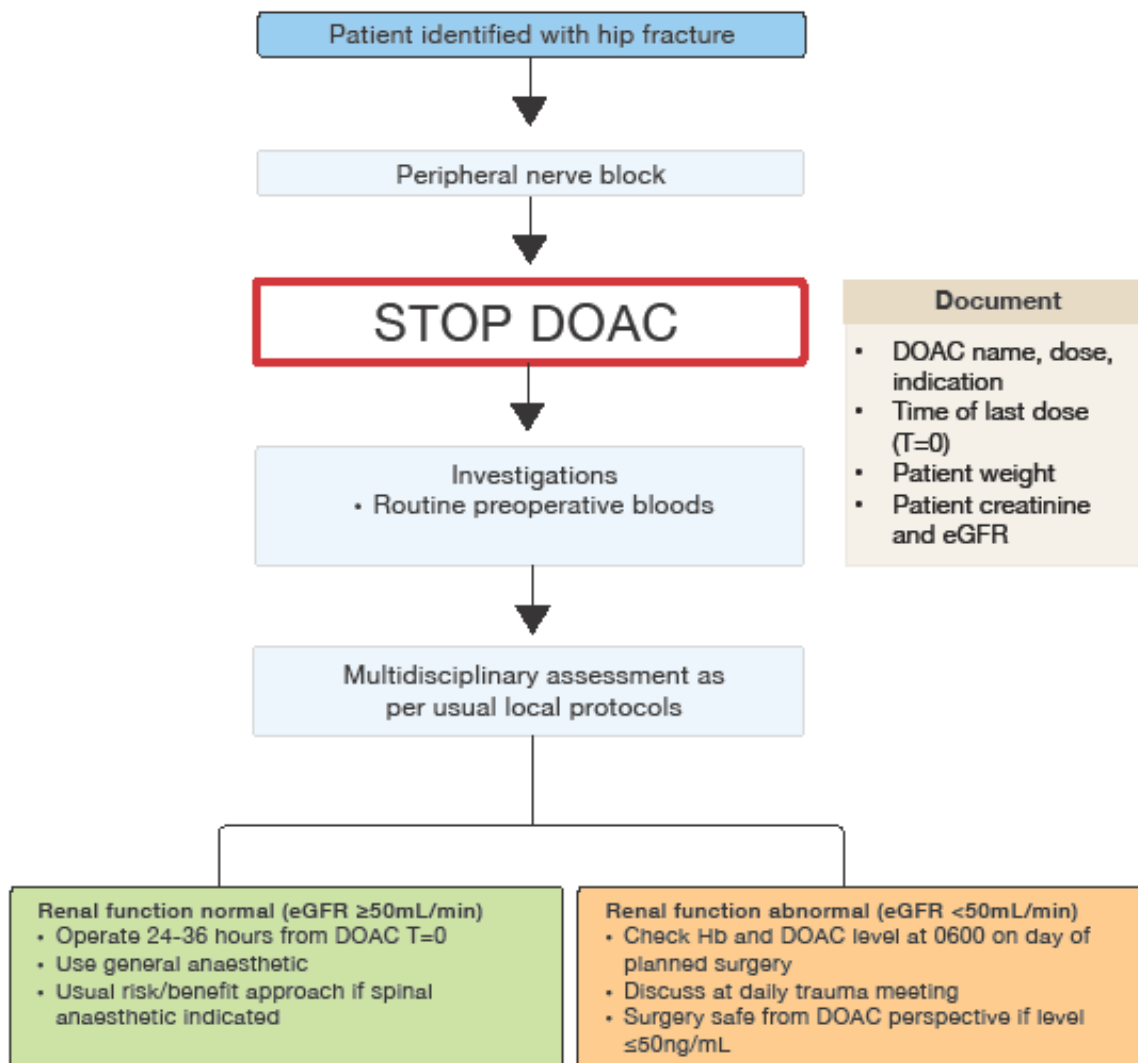
9. Authorisation

EXECUTIVE SPONSOR: Service 3 Medical Director					
Version	Date Issued	Compiled/Revised By	Committee/Consumer Group Consulted	Endorsed By	Revision due
1	11/2019	Trauma / orthopaedic Clinical Nurse Specialist	NMPGC and DTC	FSFHG Policy Committee	11/2023
2	01/2025	Orthopaedic Clinical Nurse Specialist	NMPGC and DTC	Service 3 Safety Quality and Risk committee	01/2030

10. Appendices

10.1. Appendix 1: Management of fractured neck of femur patients taking direct-acting oral anticoagulants flow chart

Management of fractured neck of femur patients taking direct-acting oral anticoagulants flow chart



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10.2. Appendix 2: Example of detailed summary of consent for spinal anaesthesia in setting of DOAC discussion

Present: Patient and 2 daughters.

Brief discussion of quality of life before fall, and what she enjoys - seeing family, standing to cook a meal. Mobilises around house and into garden.

I explained:

Choice of anaesthetic technique (to offer the safest care) and timing of surgery is a complex and difficult decision. There is no completely "safe" option; all carry risks.

- 1) Risks of delaying surgery to allow DOAC levels to fall further:
 - i. Further delay could worsen long term outcome/mobility, hospital-acquired pneumonia, respiratory failure.
- 2) Risks of General Anaesthetic in setting of severe respiratory disease and moderate to severe pulmonary hypertension.
 - i. Pneumothorax, respiratory failure, unable to extubate, hospital-acquired pneumonia, ventilator dependency, haemodynamic instability.
- 3) Risks of Spinal Anaesthesia:
 - i. Spinal haematoma risk is increased as DOAC not completely excreted.
 - ii. I have discussed with Haematologist on call, who suggests Prothrombinex to attempt to reverse anticoagulant effects of DOAC. No data currently exists on the benefits of this in this setting.

I explained I was unable to quantify the risk of spinal haematoma in this setting with Prothrombinex cover. It is probably low, but the consequences could be devastating and include permanent paralysis/loss of bowel and bladder function.

Plan would be to operate in the afternoon to maximise time for DOAC excretion.

I was asked for my opinion on the best course of action. I said I thought we should not delay surgery another day, and that spinal anaesthesia probably represented the best balance of risks and benefits in this situation.

Patient expressed her wish to get on with the operation today, and that she did not want a General Anaesthetic as she feared ventilator dependency. She opted for spinal anaesthesia with the risk mitigations of postponing to the afternoon and Prothrombinex prior.

I also discussed this decision with a consultant anaesthetist colleague on call, who agreed with the above course of action and choice of technique as being the most appropriate in this situation to balance risks and benefits.