CLOT

Is Edoxaban (Lixiana®) an Option for Your Patient?

Indications[1]

- ❑ Non-Valvular Atrial Fibrillation (NVAF) to prevent stroke & systemic embolism
  - NVAF: AF without mechanical heart valves or without moderate/severe mitral stenosis (rheumatic and non-rheumatic)[2]
- ❑ Acute VTE treatment & prevention of recurrent VTE [for deep vein thrombosis (DVT) and pulmonary embolism (PE)]
  - Cancer associated VTE (not an official indication) – guidelines recommend use in select patients[3,4]
  - Heparin Induced Thrombocytopenia (not an official indication) – guidelines recommend use in select patients (most data is with rivaroxaban)[5]

Requirements[1] - NOTE: Edoxaban accumulates in hepatic and/or renal dysfunction

- ❑ Stable creatinine clearance (CrCl) greater than 15 mL/min (see dosing recommendations)
- ❑ Stable liver function [refer to Contraindications and Limitations sections below]

Contraindications[1,2]

- ❑ Mechanical heart valves
- ❑ Edoxaban, like other anticoagulants, is contraindicated in patients at high risk for bleeding
- ❑ Pregnant/Breastfeeding: Safety & dosing has not been studied. Use is NOT recommended
- ❑ Significant liver disease with coagulopathy and clinically relevant bleeding risk. Patients with severe hepatic impairment have not been studied.

Potential Limitations[1]

- ❑ Not recommended in hemodynamically unstable acute PE or those requiring thrombectomy or thrombolysis
- ❑ Not recommended in antiphospholipid syndrome with a history of thrombosis (especially triple positive)
- ❑ Drug Interactions: Concomitant use of strong P-gp inhibitors (cyclosporine, dronedarone, erythromycin, quinidine, ketoconazole) requires a dose reduction to 30 mg daily. AVOID Inducers (rifampin, phenytoin, carbamazepine, phenobarbital, St John's Wort) and protease inhibitors (e.g. ritonavir) as there is minimal knowledge of clinical outcomes
- ❑ Rapid decline in anticoagulant effect after a missed dose; adherence is critical
- ❑ Limited data in extremes of weight (under 50 kg; over 120 kg or BMI > 40)[6]
- ❑ Less than 18 years of age: Safety & dosing has not been established
- ❑ In acute treatment of VTE: Must be preceded by 5-10 days of parenteral anticoagulant
- ❑ Patients with ALT or AST greater than 2 x ULN or total bilirubin greater than 1.5 X ULN were excluded in clinical trials
- ❑ AF: Edoxaban 60mg daily showed a higher GI bleed rate than warfarin, although lower overall bleeding events.[7]

Dosing Recommendations[1*]

Stroke Prevention in Non-Valvular Atrial Fibrillation	• 60mg Once Daily if CrCl > 50mL/min • 30 mg Once Daily if one or more of the following: ○ CrCl 15-50mL/min ○ Body weight ≤ 60Kg ○ Concomitant P-gp Inhibitor (excluding amiodarone or verapamil)	**CrCl<15 mL/min** Not Recommended
Acute DVT/PE Treatment	Parenteral Anticoagulant x 5-10 days, then edoxaban as per AF dosing	
Hip & Knee Replacement	Not approved	

* May crush & suspend in 60 to 90 mL of water to give orally or via NG; or mix with applesauce[1]

 Collaborative Learning on Thrombosis (CLOT) – Canadian pharmacists with an interest in thromboembolic disorders

This is intended only as a general reference to supplement existing knowledge of healthcare professionals in Canada & is not a substitute for sound clinical judgement. CLOT members cannot be held responsible for any harm as a result of application of this information **(October 2023)**

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Monitoring Patients on Edoxaban

- CrCl should be determined at baseline and at least annually. Monitor more frequently if older than 75y, with renal dysfunction (CrCl <60 mL/min), or when a decline in renal function suspected
- Monitor for symptoms and signs of bleeding
- No routine coagulation testing required. NOTE: INR is not useful for monitoring. Do not target INR 2 to 3. More specialized testing should only be considered in consultation with an expert in anticoagulation.

Switching Between Agents[1]

From warfarin *to* edoxaban:

- Discontinue warfarin and start edoxaban when INR 2.5 or less.

From non-warfarin anticoagulant (oral or parenteral - e.g. LMWH, rivaroxaban, dabigatran, apixaban) **to edoxaban:**

- Start edoxaban at the time the next scheduled dose of the non-warfarin anticoagulant was to be administered.
- For unfractionated heparin infusions, stop the infusion and start edoxaban 4 hours later

From edoxaban *to* warfarin:

- Start warfarin and administer edoxaban at half the prescribed dose (either 30mg, or 15mg for those on a reduced dose for one or more of the following: CrCl 15-50mL/min; ≤60Kg; use with P-gp inhibitor except amiodarone or verapamil). Once INR is 2 or greater, discontinue edoxaban. **NOTE:** Edoxaban can affect INR, therefore when starting warfarin, INR may be unreliable. If possible, checking INR just prior to next edoxaban dose may better reflect the anticoagulant effect of warfarin.

From edoxaban *to* non-warfarin anticoagulants (oral or parenteral) (e.g. LMWH, apixaban, rivaroxaban, dabigatran):

- Discontinue edoxaban and give 1st dose of non-warfarin anticoagulant at the time the next dose of edoxaban is due

Management of Bleeding Episodes with Edoxaban

- Vitamin K, protamine, tranexamic acid, plasma and/or idarucizumab will not reverse drug effects
- In the event of major hemorrhagic complications, discontinue edoxaban and refer patient for urgent assessment and locally developed management strategies
- Limited evidence demonstrates prothrombin complex concentrates (e.g. Octaplex®/Beriplex®) are able to reverse the anticoagulant effect[8], but the effect of these agents on bleeding outcomes is limited.
- Specific antidotes are not yet available in Canada[9]

Anticoagulation around Invasive Procedures[10] (e.g. surgery, elective day procedures, major dental procedures)

- As with warfarin, very low risk bleed procedures (such as dental extraction) do not require withholding edoxaban
- Management plans should be made in consultation with the provider performing the procedure
- Renal and hepatic function significantly impacts clearance of edoxaban. If the recommendations below cannot be met, consultation with an expert in anticoagulation management is encouraged.
- Due to the onset/offset time of edoxaban, peri-procedural use of LMWH is not required

Pre-Procedure – If required, stop edoxaban before procedure as follows:

Renal function# (CrCl mL/min)	Last intake of drug prior to procedure	
	Low Bleeding Risk	High Bleeding Risk*
30 or more	at least 24 hours	at least 48 hours
15 - 29	at least 36 hours	at least 48 hours

Limited clinical data for CrCl less than 30mL/min, however, if less than 15mL/min, longer duration likely necessary

* Make a careful decision (i.e., hold longer) for patients undergoing major surgery, spinal puncture, or other regional anaesthesia in whom complete hemostasis is required. Consult specialist in these high risk patients/procedures.

For an interactive perioperative management algorithm, see Thrombosis Canada website:
https://thrombosiscanada.ca/hcp/practice/clinical_tools?calc=perioperativeAnticoagulantAlgorithm

Post Procedure: Resumption should not be initiated until adequate hemostasis has been achieved and clinical situation allows (usually 1-3 days). NOTE: Full therapeutic effect occurs approximately 1-2 hours after ingestion.

References: **1.** Lixiana product monograph. (Servier Canada Inc), February 1, 2023. **2.** Andrade JG et al. Can J Cardiol 2020; 36: 1847-1948. **3.** Key NS et al. J Clin Oncol 2023; 41:3063-3071. **4.** Carrier M et al. Curr Oncol 2021; 28:5434-5451. **5.** Heparin-Induced Thrombocytopenia (HIT). https://thrombosiscanada.ca/clinical_guides/pdfs/HEPARININDUCEDTHROMBOCYTOPENIA_35.pdf Accessed October 18, 2023. **6.** Direct oral Anticoagulants in Obese Patients. https://thrombosiscanada.ca/wp-uploads/uploads/2021/09/48.-DOACS-in-Obesity_29August2021.pdf. Accessed October 14, 2022. **7.** Giugliano RP et al. N Engl J Med 2013;369:2093-2104. **8.** Zahir H, et al. Circulation 2015;131:82-90. **9.** Milling TJ Jr. et al. Circulation 2023; 147:1026-1038. **10.** Steffel J, et al. Europace 2021; 23:1612-1676.

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