

# Regional Anaesthesia in the anticoagulated patient

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ASRA

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# Guidelines

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## Regional anaesthesia and patients with abnormalities of coagulation

The Association of Anaesthetists of Great Britain & Ireland  
The Obstetric Anaesthetists' Association  
Regional Anaesthesia UK

Membership of the Working Party: W. Harrop-Griffiths, T. Cook,<sup>1</sup> H. Gill, D. Hill,<sup>2</sup> M. Ingram, M. Makris, S. Malhotra, B. Nicholls,<sup>3</sup> M. Popat, H. Swales<sup>2</sup> and P. Wood

*Why was this guideline developed?*

The available published guidance focuses on neuraxial blockade in patients receiving drug therapy specifically aimed at modifying coagulation, but does not address non-neuraxial regional blockade or patients with abnormalities of coagulation for other reasons. Currently available guidelines are lengthy and discursive, and do not lend themselves to use in the acute clinical setting. The remit of the

Drug	Time to peak effect	Elimination half-life	Acceptable time after drug for block performance	Administration of drug while spinal or epidural catheter in place <sup>1</sup>	Acceptable time after block performance or catheter removal for next drug dose
<b>Heparins</b>					
UFH sc prophylaxis	< 30 min	1–2 h	4 h or normal APTTR	Caution	1 h
UFH iv treatment	< 5 min	1–2 h	4 h or normal APTTR	Caution <sup>2</sup>	4 h
LMWH sc prophylaxis	3–4 h	3–7 h	12 h	Caution <sup>3</sup>	4 h <sup>3</sup>
LMWH sc treatment	3–4 h	3–7 h	24 h	Not recommended	4 h <sup>4</sup>
<b>Heparin alternatives</b>					
Danaparoid prophylaxis	4–5 h	24 h	Avoid (consider anti-Xa levels)	Not recommended	6 h
Danaparoid treatment	4–5 h	24 h	Avoid (consider anti-Xa levels)	Not recommended	6 h
Bivalirudin	5 min	25 min	10 h or normal APTTR	Not recommended	6 h
Argatroban	< 30 min	30–35 min	4 h or normal APTTR	Not recommended	6 h
Fondaparinux prophylaxis <sup>5</sup>	1–2 h	17–20 h	36–42 h (consider anti-Xa levels)	Not recommended	6–12 h
Fondaparinux treatment <sup>5</sup>	1–2 h	17–20 h	Avoid (consider anti-Xa levels)	Not recommended	12 h

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Drug	Time to peak effect	Elimination half-life	Acceptable time after drug for block performance	Administration of drug while spinal or epidural catheter in place <sup>1</sup>	Acceptable time after block performance or catheter removal for next drug dose
<b>Antiplatelet drugs</b>					
NSAIDs	1–12 h	1–12 h	No additional precautions	No additional precautions	No additional precautions
Aspirin	12–24 h	Not relevant; irreversible effect	No additional precautions	No additional precautions	No additional precautions
Clopidogrel	12–24 h		7 days	Not recommended	6 h
Prasugrel	15–30 min		7 days	Not recommended	6 h
Ticagrelor	2 h		8–12 h	5 days	Not recommended
Tirofiban	< 5 min	4–8 h <sup>6</sup>	8 h	Not recommended	6 h
Eptifibatide	< 5 min	4–8 h <sup>6</sup>	8 h	Not recommended	6 h
Abciximab	< 5 min	24–48 h <sup>6</sup>	48 h	Not recommended	6 h
Dipyridamole	75 min	10 h	No additional precautions	No additional precautions	6 h

**Opioid analgesics**

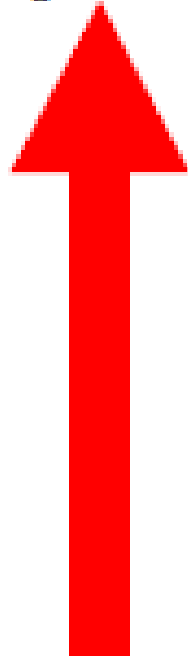
Drug	Time to peak effect	Elimination half-life	Acceptable time after drug for block performance	Administration of drug while spinal or epidural catheter in place <sup>1</sup>	Acceptable time after block performance or catheter removal for next drug dose
<b>Oral anticoagulants</b>					
Warfarin	3–5 days	4–5 days	INR ≤ 1.4	Not recommended	After catheter removal
Rivaroxaban prophylaxis <sup>5</sup> (CrCl > 30 ml.min <sup>-1</sup> )	3 h	7–9 h	18 h	Not recommended	6 h
Rivaroxaban treatment <sup>5</sup> (CrCl > 30 ml.min <sup>-1</sup> )	3 h	7–11 h	48 h	Not recommended	6 h
<b>Dabigatran prophylaxis or treatment<sup>7</sup></b>					
(CrCl > 80 ml.min <sup>-1</sup> )	0.5–2.0 h	12–17 h	48 h	Not recommended	6 h
(CrCl 50–80 ml.min <sup>-1</sup> )	0.5–2.0 h	15 h	72 h	Not recommended	6 h
(CrCl 30–50 ml.min <sup>-1</sup> )	0.5–2.0 h	18 h	96 h	Not recommended	6 h
Apixaban prophylaxis	3–4 h	12 h	24–48 h	Not recommended	6 h
<b>Thrombolytic drugs</b>					
Alteplase, anistreplase, reteplase, streptokinase	< 5 min	4–24 min	10 days	Not recommended	10 days



Table 2 Relative risk related to neuraxial and peripheral nerve blocks in patients with abnormalities of coagulation.

	Block category	Examples of blocks in category
 <p>Higher risk</p>	Epidural with catheter Single-shot epidural Spinal Paravertebral blocks	Paravertebral block Lumbar plexus block Lumbar sympathectomy Deep cervical plexus block
	Deep blocks	Coeliac plexus block Stellate ganglion block Proximal sciatic block (Labat, Raj, sub-gluteal) Obturator block Infraclavicular brachial plexus block Vertical infraclavicular block Supraclavicular brachial plexus block
	Superficial perivascular blocks	Popliteal sciatic block Femoral nerve block Intercostal nerve blocks Interscalene brachial plexus block Axillary brachial plexus block
	Fascial blocks	Ilio-inguinal block Ilio-hypogastric block Transversus abdominis plane block Fascia lata block
	Superficial blocks	Forearm nerve blocks Saphenous nerve block at the knee Nerve blocks at the ankle Superficial cervical plexus block Wrist block Digital nerve block Bier's block
Normal risk	Local infiltration	

Higher risk



Paravertebral blocks

Deep blocks

Paravertebral block  
Lumbar plexus block  
Lumbar sympathectomy  
Deep cervical plexus block

Coeliac plexus block  
Stellate ganglion block  
Proximal sciatic block (Labat, Raj, sub-gluteal)  
Obturator block  
Infraclavicular brachial plexus block  
Vertical infraclavicular block  
Supraclavicular brachial plexus block

