

Peri-Endoscopic Management of Anticoagulant and Anti-Platelet Drugs

Dr. Daniel Sadowski

Royal Alexandra Hospital, Edmonton

SCMD

Semaine canadienne des maladies digestivesSM

CDDW

Canadian Digestive Diseases WeekSM

CanMEDS Roles Covered

X	<p>Medical Expert (as <i>Medical Experts</i>, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centered care. <i>Medical Expert</i> is the central physician Role in the CanMEDS Framework and defines the physician’s clinical scope of practice.)</p>
	<p>Communicator (as <i>Communicators</i>, physicians form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.)</p>
	<p>Collaborator (as <i>Collaborators</i>, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.)</p>
	<p>Leader (as <i>Leaders</i>, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.)</p>
	<p>Health Advocate (as <i>Health Advocates</i>, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.)</p>
X	<p>Scholar (as <i>Scholars</i>, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.)</p>
	<p>Professional (as <i>Professionals</i>, physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.)</p>

Conflict of Interest Disclosure

(Over the past 24 months)

Name: Daniel C. Sadowski

No relevant relationships with any commercial or non-profit organizations

Learning Objective

- By the end this session, the participant will:
 - Be able to appropriately manage anticoagulant and antiplatelet agents pre- and post-endoscopy.

- 68 y.o. male referred to clinic for positive FIT
- No GI symptoms or family history
- Past Medical History:
 - NSTEMI 10 months prior. Drug Eluting Coronary stent
 - Non-valvular AFIB
 - Hypertension
 - NIDDM
 - TIA 2 years prior
 - CKD – S. Creatinine 155 umol/L
- Medications:
 - Dabigitran 110 mg BID
 - Ticagrelor 90 mg BID
 - ASA 81 mg
 - Metformin 500 BID
 - Metoprolol 25 mg BID
- **CHA2DS2-VASc score = 4**

Issues to consider:

- What is the risk of bleeding due to the intended procedure?
- What is the risk of adverse CV events if drug therapy is withheld?
- What is the risk of bleeding due to DOAC and anti-platelet therapy?
- When to restart drugs after the procedure??



Endoscopy in patients on antiplatelet or anticoagulant therapy, including direct oral anticoagulants: British Society of Gastroenterology (BSG) and European Society of Gastrointestinal Endoscopy (ESGE) guidelines

Andrew M Veitch,¹ Geoffroy Vanbiervliet,² Anthony H Gershlick,³ Christian Boustiere,⁴ Trevor P Baglin,⁵ Lesley-Ann Smith,⁶ Franco Radaelli,⁷ Evelyn Knight,⁸ Ian M Gralnek,^{9,10} Cesare Hassan,¹¹ Jean-Marc Dumonceau¹²

BSG Guidelines. Gut
2016;65:374–389.



GUIDELINE



The management of antithrombotic agents for patients undergoing GI endoscopy

Prepared by: ASGE STANDARDS OF PRACTICE COMMITTEE

Gastrointestinal Endoscopy
2016;83(1):3-16

Management of patients on antithrombotic agents undergoing emergency and elective endoscopy: joint Asian Pacific Association of Gastroenterology (APAGE) and Asian Pacific Society for Digestive Endoscopy (APSDE) practice guidelines

Francis K L Chan,¹ Khean-Lee Goh,² Nageshwar Reddy,³ Kazuma Fujimoto,⁴ Khek Yu Ho,⁵ Seiji Hokimoto,⁶ Young-Hoon Jeong,⁷ Takanari Kitazono,⁸ Hong Sik Lee,⁹ Varocha Mahachai,¹⁰ Kelvin K F Tsoi,¹¹ Ming-Shiang Wu,¹² Bryan P Yan,¹³ Kentaro Sugano¹⁴

Gut 2018;67(3):405-417

High-risk Procedures	Low Risk Procedures
Polypectomy/ colonoscopy	Diagnostic (EGD, colonoscopy, flexible sigmoidoscopy) including biopsy
Biliary or pancreatic sphincterotomy	ERCP without sphincterotomy
Pneumatic or bougie dilation	EUS without FNA
PEG placement	Enteroscopy and diagnostic balloon-assisted enteroscopy
Therapeutic balloon-assisted enteroscopy	Capsule endoscopy
EUS with FNA	
Enteral stent deployment (without dilation)	ULTRA- HIGH RISK:
Tumor ablation by any technique	Endoscopic submucosal resection
Cystogastrostomy	EMR of lesions >2cm
Treatment of varices	POEM

Risks of Thromboembolism if therapy is temporarily withheld:

- Low
 - AF with CHADS2 Score 0-2
 - Bioprosthetic valve or mechanical aortic valve
 - Previous remote DVT (> 3 months)

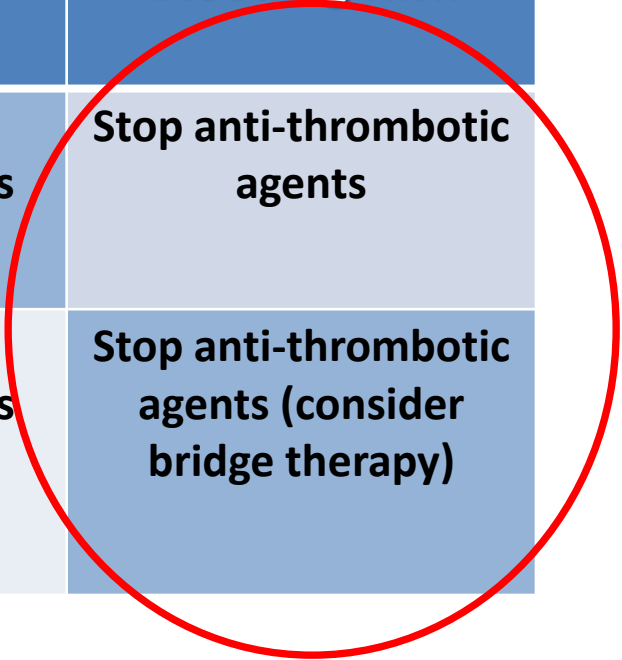
- High
 - Recent CVA/TIA (<3 months)
 - AF with CHADS2 - >2
 - DVT/PE in last 3 months
 - Mechanical mitral valve
 - Severe/multiple thrombophilic abnormalities
 - Recent placement of coronary stent (<12 months DES, <1 month for bare metal stent)

Bleeding vs. Thrombosis

	Low Procedural Bleeding Risk	High Procedural Bleeding Risk
Low risk of Thrombosis or Embolism	Continue anti-thrombotic agents	Stop anti-thrombotic agents
High Risk of Thrombosis or Embolism	Continue anti-thrombotic agents	Stop anti-thrombotic agents (consider bridge therapy)

Bleeding vs. Thrombosis

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- Agents:
 - Dabigatran (Pradaxa)
 - Riveroxaban (Xaralto)
 - Apixaban (Eliquis)
 - Edoxaban (Lixiana)

Drug	Half-Life*	When to Stop**
Dabigatran	14 hours	48 hours***
Riveroxaban	8-12 hours	48 hours
Apixaban	8-15 hours	48 hours
Edoxaban	8-15 hours	48 hours

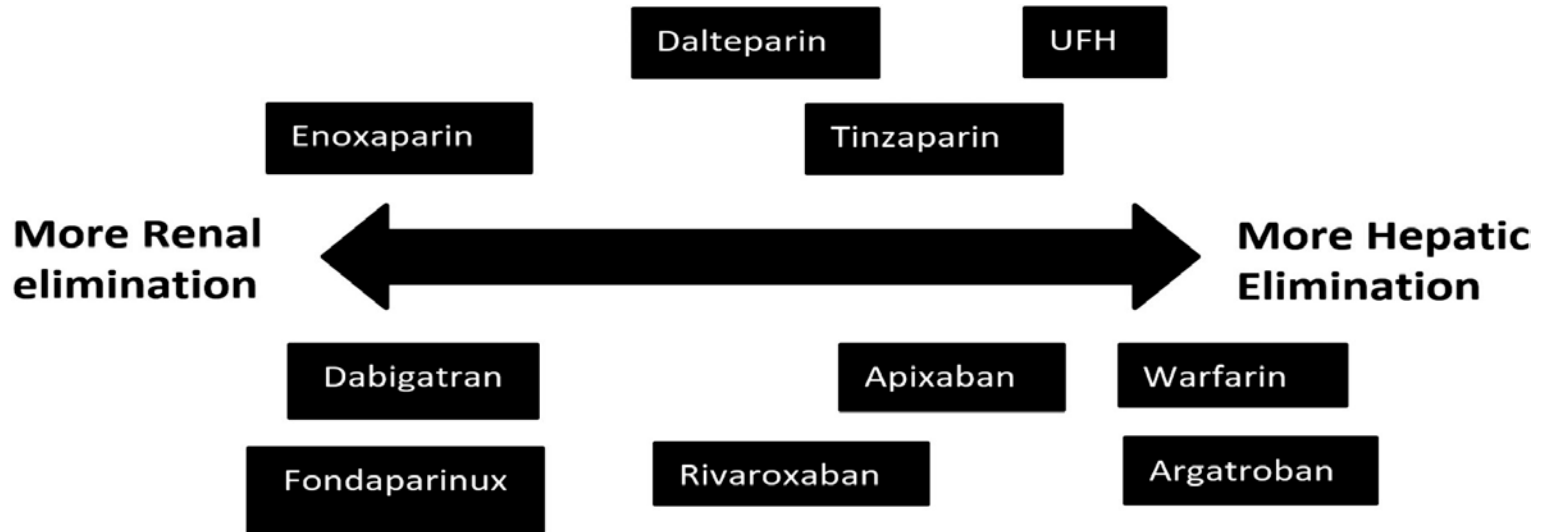
* With normal creatinine clearance

TABLE 6. Periprocedural management of dabigatran (Pradaxa)⁵³

Creatinine clearance (mL/min)	Time to onset of action (h)	Half-life (h)	Timing of discontinuation before procedure	
			Moderate procedural bleeding risk (2-3 half-lives)	High procedural bleeding risk (4-5 half-lives)
>80	1.25-3	13 (11-22)	1-1.5 days	2-3 days
50-80	1.25-3	15 (12-34)	1-2 days	2-3 days
30-49	1.25-3	18 (13-23)	1.5-2 days	3-4 days
≤29	1.25-3	27 (22-35)	2-3 days	4-6 days

ASGE Guidelines. Gastrointestinal Endoscopy 2016;83:3-16

Renal and hepatic clearance



Christine Ribic, and Mark Crowther Hematology 2016;2016:188-195



Thrombosis Canada Mobile app

17:01

Tools Perioperati... Menu

Creatinine Clearance

Female patient

Age (years)

Weight (kg)

Serum Creatinine ($\mu\text{mol/L}$)

< Back Next >

Creatinine Clearance
47.5 mL/min

When estimating amount of drug in circulation remember to consider:

- Timing of last dose

17:02

Tools Perioperati... Menu

postoperative day 1 if hemostasis is adequate.

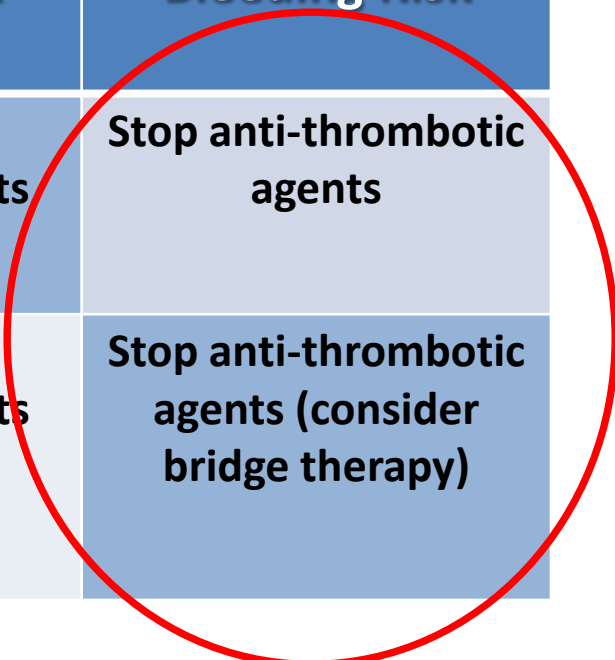
Schedule

Day	Instructions
-5	Dabigatran as usual (morning and night)
-4	Consider holding dabigatran
-3	No dabigatran
-2	No dabigatran
-1	No dabigatran
Surgery	No dabigatran

Reset

Bleeding vs. Thrombosis

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Perioperative Bridging Anticoagulation in Patients with Atrial Fibrillation

James D. Douketis, M.D., Alex C. Spyropoulos, M.D., Scott Kaatz, D.O.,
Richard C. Becker, M.D., Joseph A. Caprini, M.D., Andrew S. Dunn, M.D.,
David A. Garcia, M.D., Alan Jacobson, M.D., Amir K. Jaffer, M.D., M.B.A.,
David F. Kong, M.D., Sam Schulman, M.D., Ph.D., Alexander G.G. Turpie, M.B.,
Vic Hasselblad, Ph.D., and Thomas L. Ortel, M.D., Ph.D.,
for the BRIDGE Investigators*

NEJM 2015; 373:9

1884 patients NV Afib patients were enrolled. Treated with Warfarin
•950 assigned to receive no bridging therapy, 934 assigned to receive bridging

The incidence of arterial thromboembolism

- 0.4% in the no-bridging group
- 0.3% in the bridging group (Dalteparin)

60% CHADS2 score of 2 or less

The incidence of major bleeding:

- 1.3% in the no-bridging group
- 3.2% in the bridging group

Warfarin and Heparin Bridging Therapy

- All three major guidelines recommend heparin bridging therapy for the following conditions:
- Non-valvular atrial fibrillation
 - CHA2DS2-VASc score: APAG >5, ASGE >2, BSG – unclear....
- Metallic mitral valve
- Prosthetic valve with atrial fibrillation
- <3 months after VTE
- Severe thrombophilia (protein C or protein S deficiency, antiphospholipid syndrome)

- What about the patient with A. Fib treated with a DOAC and HIGH CHADS2 SCORE?
- DOAC's relatively rapid on and off effects.
- 2 studies:
 - Dresden Registry (rivaroxiban)
 - Sub-study of the RE-LY trial (dabigatran)
 - No difference in cardiovascular events.
 - Significantly higher rates of major bleeding

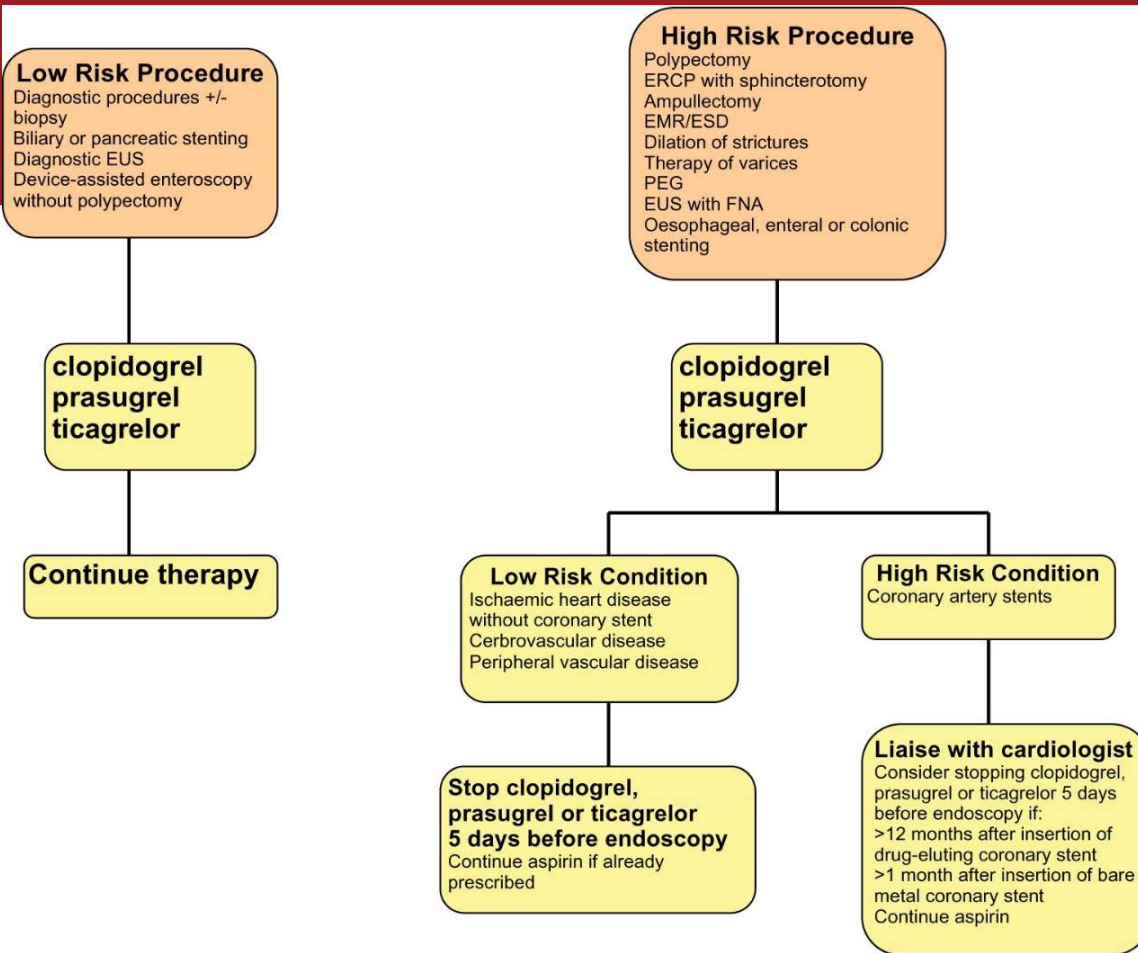
Beyer-Westendorf J, Gelbricht V, Förster K, et al. Eur Heart J 2014;35:1888–96.
Douketis JD, Healey JS, Brueckmann M, et al.. Thromb Haemost 2015;113:625–32.

Bleeding vs. Thrombosis

	Low Procedural Bleeding Risk	High Procedural Bleeding Risk
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Anti-Platelet Agents

- For all endoscopic procedures: Low and High Risk
 - Continue ASA – 81 mg daily
- What about dual anti-platelet therapy?



Low Risk Procedure
Diagnostic procedures +/- biopsy
Biliary or pancreatic stenting
Diagnostic EUS
Device-assisted enteroscopy without polypectomy

**clopidogrel
prasugrel
ticagrelor**

Continue therapy

High Risk Procedure
Polypectomy
ERCP with sphincterotomy
Ampullectomy
EMR/ESD
Dilation of strictures
Therapy of varices
PEG
EUS with FNA
Oesophageal, enteral or colonic stenting

**clopidogrel
prasugrel
ticagrelor**

Low Risk Condition
Ischaemic heart disease without coronary stent
Cerebrovascular disease
Peripheral vascular disease

**Stop clopidogrel,
prasugrel or ticagrelor
5 days before endoscopy**
Continue aspirin if already prescribed

High Risk Condition
Coronary artery stents

Liaise with cardiologist
Consider stopping clopidogrel, prasugrel or ticagrelor 5 days before endoscopy if:
>12 months after insertion of drug-eluting coronary stent
>1 month after insertion of bare metal coronary stent
Continue aspirin

Low Risk Procedure

Diagnostic procedures +/-
biopsy
Biliary or pancreatic stenting
Diagnostic EUS
Device-assisted enteroscopy
without polypectomy

High Risk Procedure

Polypectomy
ERCP with sphincterotomy
Ampullectomy
EMR/ESD
Dilation of strictures
Therapy of varices
PEG
EUS with FNA
Oesophageal, enteral or colonic
stenting

Anti-Platelet Agents with long half-lives:
Ticlopidine: Hold for 10 days prior to procedure
Vorapaxar (PAR-1) inhibitor: Hold for up to 14 days prior to procedure

**Stop clopidogrel,
prasugrel or ticagrelor
5 days before endoscopy**

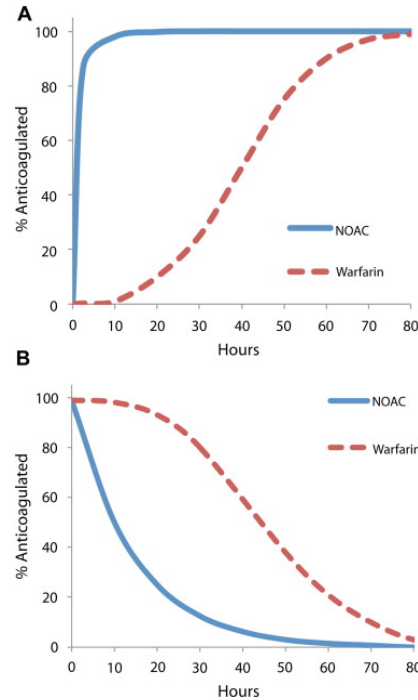
Continue aspirin if already
prescribed

Stop prasugrel or ticagrelor 5 days
before endoscopy if:
>12 months after insertion of
drug-eluting coronary stent
>1 month after insertion of bare
metal coronary stent
Continue aspirin

- For all endoscopic procedures we recommend continuing aspirin (*moderate evidence, strong recommendation*)
- With the exception of:
 - Endoscopic submucosal dissection (ESD)
 - Large colonic endoscopic mucosal resection (EMR) (>2 cm)
 - Upper gastrointestinal EMR/POEM and ampullectomy.
 - In these cases, aspirin discontinuation should be considered on an individual patient basis depending on the risks of thrombosis versus hemorrhage (*low quality evidence, weak recommendation*).
 - **My comment – what about NSAIDs?**

BSG Guidelines. Gut 2016;65:374–389.

Post Procedure Management....



Ticagrelor and Prasugrel:
Time to maximal platelet inhibition
is 4 hours.

- Guidelines:
 - “When hemostasis is achieved...”
- For low risk rebleeding – start DOACS/DAPT morning after procedure or evening of procedure for BID dosing
- Higher risk of bleeding depends on:
 - Snare cautery polypectomy vs cold snare
 - ESD vs EMR
 - Size, location, clips, endoloop
- In most cases hold DOAC/DAPT for 48 hours – at most 72 hours
 - E.g. ERCP + sphincterotomy
- If longer time is needed – consider bridge therapy with UFH.

US MULTI-SOCIETY TASK FORCE

Endoscopic Removal of Colorectal Lesions—Recommendations by the US Multi-Society Task Force on Colorectal Cancer



**Tonya Kaltenbach,¹ Joseph C. Anderson,^{2,3,4} Carol A. Burke,⁵ Jason A. Dominitz,^{6,7} Samir Gupta,^{8,9}
David Lieberman,¹⁰ Douglas J. Robertson,^{2,3} Aasma Shaukat,^{11,12} Sapna Syngal,¹³ Douglas K. Rex¹⁴**

This article is being published jointly in *Gastrointestinal Endoscopy*, *Gastroenterology*, and *The American Journal of Gastroenterology*.

Issues to consider:

- What is the risk of bleeding due to the intended procedure?
 - High vs low risk endoscopic procedures
- What is the risk of adverse CV events if drug therapy is withheld?
 - High vs low risk factors
- What is the risk of bleeding due to DOAC and anti-platelet therapy?
 - Hold drugs prior to procedure based on
- When to restart drugs after the procedure??