Anticoagulation Transitions: *Perioperative Care*

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Four Questions for each Consultation…

1. Is anticoagulation appropriate for this patient?
2. Does procedure require holding warfarin?
3. Does patient require a “bridge”?
4. When can anticoagulation restart?

Question 1…

Is anticoagulation appropriate for this patient?

Transitions offer a golden opportunity to re-examine the clinical indications for anticoagulation in our patients. Due to changes in a patient's clinical status or even changes in guidelines, anticoagulation may no longer be appropriate.

Question 2…

Does procedure require holding warfarin?

The bleeding risk of the procedure determines whether or not a hold in anticoagulation is required, and if so, for how long. The range of bleeding risk extends from low risk not requiring hold (cataract and most dental surgery) to extremely high risk requiring a prolonged hold (spinal surgery).

Surgeries That Can Be Performed on Warfarin

ental

- Restorations
- Endodontics
- Prosthetics
- Uncomplicated extractions
- Dental hygiene treatment
- Peridontal therapy

phthalmologic

- ataract extractions

I

- Upper endoscopy with/out biopsy
- Flexible sigmoidoscopy with/out biopsy
- Colonoscopy with/out biopsy
- ERCP without sphincterotomy
- Biliary stent insertion without sphincterotomy
- Endosonography without fine-needle aspiration

rthopedic

- Push enteroscopy of the small bowel
- Joint aspiration
- Soft tissue injections
- Minor podiatric procedures

From MA Coalition's presentation at the National Patient Safety Foundation Congress, May, 2008

Dental Surgery

SAFETY OF OUTPATIENT DENTAL TREATMENT FOR PATIENTS ON COUMADIN (WARFARIN) THERAPY

DENTAL TREATMENT	SUBOPTIMAL INR RANGE	SUBOPTIMAL INR RANGE	NORMAL TARGET INR RANGE	NORMAL TARGET INR RANGE	MAY BE NORMAL TARGET WITH MECHANICAL HEART VALVE	OUT OF RANGE
	<1.5	1.6 - 1.9	2.0 - 2.5	2.5 - 3.0	3.1 - 3.5	>3.5
Exam, X-Ray, Study Models	SAFE	SAFE	SAFE	SAFE	SAFE	INSUFFICIENT RESEARCH
Simple restoration, supragingival prophylaxis	SAFE	SAFE	SAFE	SAFE	SAFE	NOT ADVISED
Complex restoration, scaling, root planing, endodontics	SAFE	SAFE	SAFE	SAFE	INSUFFICIENT RESEARCH	NOT ADVISED
Simple extraction, curettage, gingivoplasty	SAFE	SAFE	SAFE	LOCAL MEASURES	LOCAL MEASURES	NOT ADVISED
Multiple extractions, removal of single bony impaction	SAFE	SAFE	LOCAL MEASURES	LOCAL MEASURES	LOCAL MEASURES	NOT ADVISED

ASGE Guidelines

Procedure risk	Condition risk for Thromboembolism	
	High	Low
High	Discontinue warfarin 3-5 days before procedure. Consider heparin while INR is below therapeutic level.	Discontinue warfarin 3-5 days before procedure. Reinstate warfarin after procedure
Low	No change in anticoagulation. Elective procedures should be delayed while INR is in supratherapeutic range.	

Procedure risk	
High-risk procedures	**Low-risk procedures**
• Polypectomy • Pneumatic or bougie dilation • PEG placement • Endosonographic guided fine needle aspiration •	• Diagnostic 1. EGD ± biopsy 2. Flex sig ± biopsy 3. Colonoscopy ± biopsy • ERCP without sphincterotomy • Biliary/pancreatic stent without endoscopic sphincterotomy

But will the gastroenterologist do the procedure?

Survey of Harvard Vanguard Medical Associates gastroenterologists: (10/14 responses, with 1/4 of non-responders away on vacation)

Procedure	% willing to do procedure w/therapeutic INR
Upper endoscopy with biopsy	0
Upper endoscopy without biopsy	90
Flexible sigmoidoscopy with biopsy	0
Flexible sigmoidoscopy without biopsy	90
Colonoscopy with biopsy	0
Colonoscopy without biopsy	80
ERCP without sphincterotomy	71
Biliary stent insertion without sphincterotomy	42
Endosonography without fine-needle aspiration	71
Push enteroscopy of the small bowel	57

Comments:

Surgeries That Will Usually Be Performed on Warfarin

ental

- Restorations
- Endodontics
- Prosthetics
- Uncomplicated extractions
- Dental hygiene treatment
- Peridontal therapy

I

- Upper endoscopy without biopsy
- Flexible sigmoidoscopy without biopsy
- Colonoscopy without biopsy
- ERCP without sphincterotomy
- *Biliary stent insertion without sphincterotomy - maybe*

rthopedic

- Endosonography without fine-needle aspiration
- Joint aspiration
- Push enteroscopy of the small bowel
- Soft-tissue injections
- Minor podiatric procedures

phthalmologic

- **ataract extractions**

Talk to your gastroenterologist!

Modified from MA Coalition's presentation at the National Patient Safety Foundation Congress, May, 2008

Question 3…

Does patient require a “bridge”?

Need for “bridging” depends on the duration of the anticipated hold and the thrombotic risk of the patient. Any procedure with a high bleeding risk will be likely to require a more prolonged hold; but the main decision depends on thrombotic risk stratification.

Risk Stratification for Perioperative Care

Indication for VKA Therapy

	Mechanical Heart Valve	Atrial Fibrillation	VTE
High	-Any mitral valve prosthesis -Older (caged-ball or tilting disc) aortic valve prosthesis -Recent (within 6 mo) stroke or transient ischemic attack	-CHADS2 score of 5 or 6 -Recent (within 3 mo) stroke or transient ischemic attack, -Rheumatic valvular heart disease	-Recent (within 3 mo) VTE -Severe thrombophilia (e.g., deficiency of protein C, protein S or antithrombin, antiphospholipid antibodies, or multiple abnormalities)
Medium	-Bileaflet aortic valve prosthesis and one of the following: atrial fibrillation, prior stroke or transient ischemic attack, hypertension, diabetes, congestive heart failure, age >75yr	-$CHADS_2$ score of 3 or 4	-VTE within the past 3 to 12 mo -Non-severe thrombophilic conditions *(e.g.,* heterozygous factor V Leiden mutation, heterozygous factor II mutation) -Recurrent VTE -Active cancer (treated within 6 months or palliative)
Low	Bileaflet aortic valve prosthesis without atrial fibrillation and no other risk factors for stroke	-$CHADS_2$ score of 0 to 2 (and no prior stroke or transient ischemic attack)	Single VTE occurred > 12 mo ago and no other risk factors

CHAD-2 Risk Factors and Score

CHAD-2 Stroke Risk Factors	Score
Congestive heart failure	+1
Hypertension	+1
Age 75 years or older	+1
Diabetes mellitus	+1
History of stroke or TIA	+2

Score	Risk of a Stroke
0-2	low
3-5	medium
6	high

CHAD-2 Score, Estimated Strokes, Prevented Strokes

Score	% with Stroke at 1.2 years	Estimated % with stroke at 1 year	Estimated prevented strokes/1000 patients/year	Estimated % with stroke in 1 week	Estimated % with stroke in 2 weeks	Estimated prevented strokes/1000 patients/2 weeks
0	1.7	1.4	*7*	0.03	0.05	*<1*
1	3.7	3.1	*16*	0.06	0.12	*<1*
2	4.4	3.7	*18*	0.07	0.14	*<1*
3	7.4	6.2	*31*	0.12	0.24	*1*
4	8.6	7.2	*36*	0.14	0.28	*1*
5	9.2	7.7	*39*	0.15	0.29	*2*
6	40.0	33.3	*167*	0.64	1.28	*6*

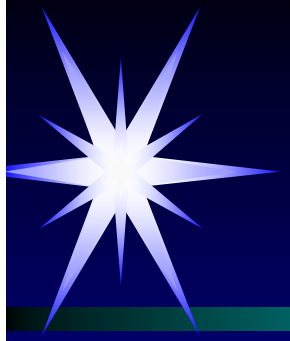
Question 4…

When can anticoagulation be resumed?

- *Warfarin can generally be resumed 12 to 24 hours after surgery, once hemostasis has been secured, realizing that it will take two days to reach a partial anticoagulation effect.*
- *If surgery is major, LMWH may require a more prolonged hold, so decision for resumption requires the surgeon's assessment of post-operative bleeding risk.*

Cases 5, 6, and 7

Questions?...



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The End