To bleed or not to bleed?

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Pre-assessment and liver transplantation

Disclosures

- None
- Had very little interest in coagulation
- Can never remember the clotting factors and what they do

Freeman PAC

- High throughput clinic
- 16-18,000 pts are seen annually
- Nurse led service with anaesthetic consultant support
- 9% on the day cancellation rate to now being a datix
- Unfortunately I seem to hear about them all

The drugs

- Anti-coagulant –

1. warfarin
2. dabigatran, rivaroxaban, apixaban

- Anti-platelet

1. aspirin
2. clopidogrel, prasgurel, ticagrelor

PROBLEMS

- PAC – nurse lead service and needs guidelines
- Certain surgeons will not agree and want there own policy followed – specifically high risk of catastrophic bleeding or CEA
- Broad consensus opinion
- Minimise risk of bleeding vs risk of devastating thrombosis

Anaesthesia

- No harm speciality

One size fits all

150

Pre-op warfarin policy

- Stop 5 days pre-op – level 1 evidence
- 3 bridging options – full dose tinzaparin
  low dose tinzaparin
  nothing
- PT on admission
- Recommence when surgically happy to and no epidural in situ

Atrial fibrillation

- Then came the CHADS2 score
- Bridge if higher risk of thrombotic complications ie previous stroke or 3 risk factors

Newer agents

- No known reversal agent – so need to get this right
- Meant to have predictable pharmacokinetics – no bridge in vast majority of patients!! (level IIb, C evidence)
- Need to add together Cr Cl, childs score and age with risk of bleeding +/- epidural – by a nurse in PAC

Problems

- Not reversible – emergency surgery
- Can’t monitor
- Accumulate in renal failure
- Expensive

Dabigatran

Renal function (CrCl, mL/min)	Half-life of dabigatran (hours)[a]	Timing of discontinuation after last dose of dabigatran before surgery	
		Standard risk of bleeding	High risk of bleeding[a]
> 80	13 (11-22)	24 hours	2-4 days
> 50 to ≤ 80	15 (12-34)	24 hours	2-4 days
> 30 to ≤ 50	18 (13-23)	At least 2 days (48 hours)	4 days
≤ 30[b]	27 (22-35)	2-5 days	> 5 days

Questions

1. When to stop?
2. Do we bridge?
3. Do we split between high and low risk of bleeding?
4. If deemed low risk but anaesthetist then wants to perform regional anaesthetic are we happy to postpone patient?
5. Calculation of eGFR – never done before in PAC

Answers

1. All deemed high risk of bleeding
2. No bridging for AF
3. One dose of tinzaparin for DVT/PE
4. All notes reviewed by a consultant

Specifics – when to stop

- Rivaroxaban – take in account age, liver function and eGFR
- Apixiban – age, weight and eGFR to ensure patient on the correct dose

Antiplatelets

- Far bigger issue

ASPIRIN

1. Withhold on day of surgery
2. Majority seem happy to perform surgery and regional anaesthesia
3. Restart even if epidural in situ
4. Decreases thrombotic complications with no excessive bleeding risk

NEJM 2014
POISE 2 trial

- Randomised control trial aspirin vs no aspirin
- Increased rates of bleeding and renal failure
- ?decreased risk of stroke
- No major benefit

Clopidogrel

- Indirect acting ADP inhibitor
- CAD, CVA and PVD
- Dual or single agent
- No definitive studies perioperatively
- Stop 7 days pre-operatively unless CEA
- No regional anaesthesia unless stopped 7 days in advance
- 15-40% non-responders – newer antiplatelet medications

JAMA 2014
CVA and surgery

- Outcomes of patients with recent CVA and undergoing surgery
- Massively increased risk of MACE in esp first 9 months
- Didn’t look at the management of antiplatelet medication
- Suggests we shouldn’t just stop clopidogrel in this high risk group

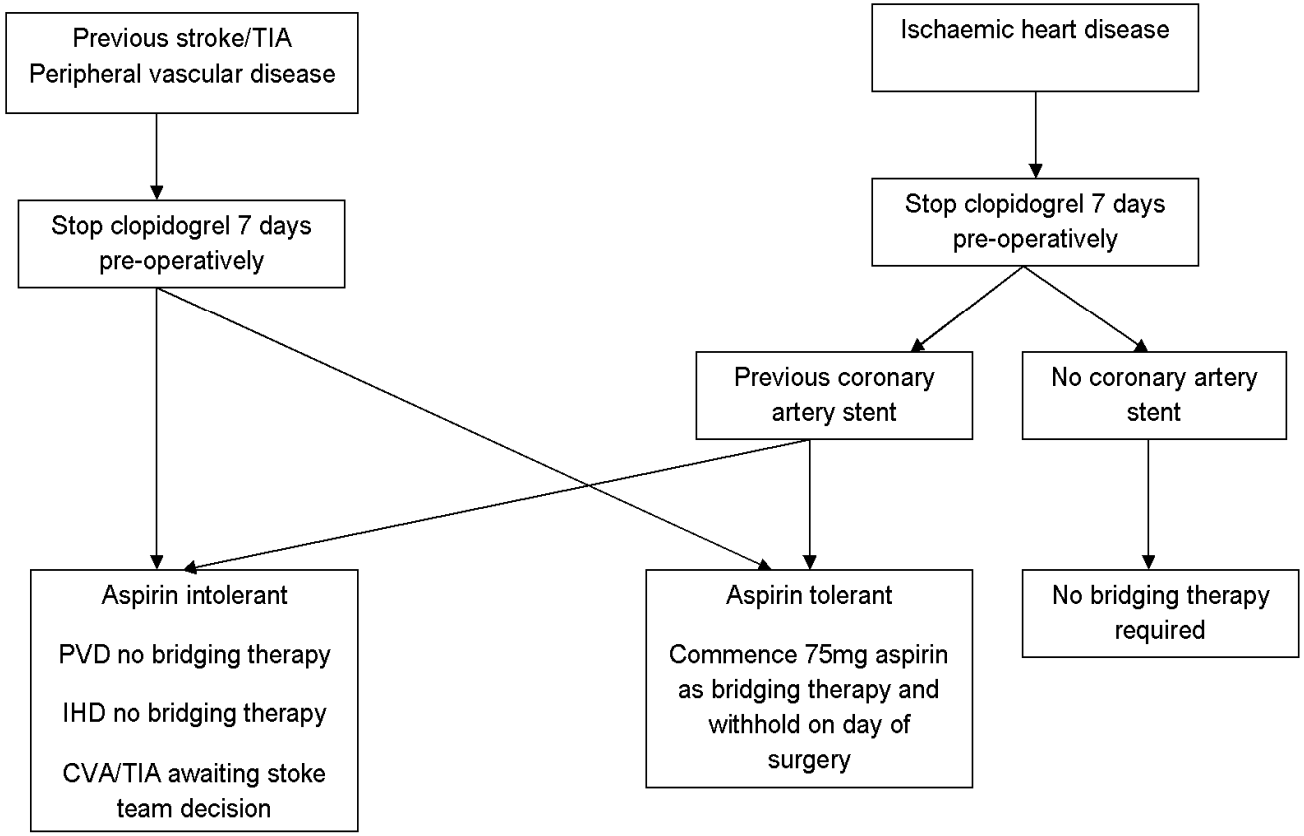
Single agent clopidogrel

- Currently stopping with occasional use of tinzaparin bridging therapy
- Doesn’t make sense – completely different mode of action
- Safe alternative that has been shown to be effective in reducing thrombotic complications – ASPIRIN
- Agreement from cardiologists, vascular surgeon, stroke team to bridge with aspirin

Single agent antiplatelet therapy

Clopidogrel

Choose the reason for the oral anticoagulant; if multiple reasons, choose the one furthest to the left. Follow the flow arrows for management and issue written patient instructions with completed sections. Specific surgeons may want clopidogrel stopping prior to 7 days. Other surgeons may want clopidogrel to be taken upto the day prior to surgery i.e. carotid endarterectomy



Newer antiplatelet agents

- Prasugrel

1. Similar to clopidogrel
2. Used in STEMI and stent thrombosis on clopidogrel in combination with aspirin

- Ticagrelor

1. Direct mode of action – reversible
2. More potent than clopidogrel!!!
3. Used in ACS or STEMI in combination with aspirin

Dual antiplatelet therapy

- Recent cardiac stent to prevent stent thrombosis
- Delay surgery - >6 weeks bare metal
  >6 months DES
- Some newer stents licence for 1-3 months of DAPT – no evidence perioperatively and 1 pt died from massive intra-op MI

DAPT

- This is very high risk surgery - needs full MDT decision about whether to proceed and patient to be aware of potential complication
- Discussion with cardiologist re: type of stent and lesion stented to assess risk
- Stop clopidogrel/prasugrel/ticagrelor 7 days pre-op and continue aspirin
- Recommence ASAP – but not if epidural in situ. The decision to insert epidural has to be careful considered

Cangrelor

- Future
- IV antiplatelet agent – not licenced as yet
- ? Future clinical trial agent for bridging therapy in high risk non cardiac surgical patient

CASES

- Apixiban

1st patient 54kg and 80 yrs of age

Arrange with GP to decrease dose

2nd patient heart transplant in AF with a calculated eGFR 15.4

Stopping 5 days preop and checking levels on admission

- Radical neck dissection and free flap
- MI Sept 2012
- PCI and 7 stents
- Commenced ticagrelor and aspirin
- Told never to stop aspirin
- Seen by surgeon on Friday told to stop everything including aspirin sent to PAC and would operate on Monday

Conclusion

- “One size may not fit all”
- Indications for use will expand exponentially so all need to be increasingly aware
- Legal minefield
- Robust protocols in place – pre and post operative management
- Need to find a friendly stroke physician, cardiologist and haematologist

Questions?

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