

Use of a web-based tool to aid periprocedural management of anticoagulation in a community

hospital and in-network referral base

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Purpose

- To standardize and streamline periprocedural anticoagulation management in our community hospital and across referring practices within our network.

Methods/Results

- In an effort to streamline and standardize periprocedural management of anticoagulation we created a web-based tool to query anticoagulant management guidelines (withholding and reinitiation of medications) for interventional procedures (i.e. vascular access, biopsies, abscess drainage, cholecystostomy, nephrostomy, gastrostomy), fluoroscopic-guided procedures (i.e. joint aspiration/injection, lumbar puncture) and breast procedures (i.e. fine-needle aspiration, core/stereotactic vacuum biopsy).
- SIR and the British Society of Breast Radiology anticoagulation guidelines were used. Iterations of our tool were made using Microsoft Excel's PivotTable and AirTable's Interfaces.

Background

- Management of patients on anticoagulation therapy undergoing intervention is complex and constantly evolving. The American Heart Association anticipates increased long-term anticoagulation use for treatment of thromboembolic disease and estimates around 10% of patients receiving long-term anticoagulation will require an invasive procedure each year.
- For minimally-invasive procedures performed by interventional radiologists, Society of Interventional Radiology (SIR) has published practice guidelines which aid in periprocedural management of anticoagulants.
- In community practices both interventional and diagnostic radiologists perform image-guided procedures, therefore periprocedural anticoagulation management is not standardized.
- As for breast interventions, Society of Breast Imaging does not offer specific recommendations. Lack of streamlined guidelines within a radiology department and across a network of referring providers results in cancelled procedures and confusion between patients and clinicians regarding anticoagulation management.

Conclusions

- We aim to make our tool standard within our department and available to referring providers within our network.
- This will aid communication between the radiologist and the referring providers and reduce cancellations which will improve patient care delivered by radiologists in a community practice.

References

- Patel, I. J., Rahim, S., Davidson, J. C., Hanks, S. E., Tam, A. L., Walker, T. G., Wilkins, L. R., Sarode, R., & Weinberg, I. (2019). Society of Interventional Radiology Consensus Guidelines for the periprocedural management of thrombotic and bleeding risk in patients undergoing percutaneous image-guided interventions—part II: Recommendations. *Journal of Vascular and Interventional Radiology*, 30(8). <https://doi.org/10.1016/j.jvir.2019.04.017>
- British Society of Breast Radiology. (n.d.). Guidelines for performing breast and axillary biopsies in patients on anticoagulant and antiplatelet therapy. Retrieved March 18, 2023, from <https://breastradiology.org/media/1022/bsbr-anticoag-guidelines-august-2018.pdf>

FIRST - SELECT PROCEDURE BELOW USING THE FILTER BUTTON

Fluro: Joint injection or Aspiration

Lab considerations
* PT/INR: not routinely recommended* Hemoglobin: not routinely recommended * INR: correct to within range of 2.0-3.0* Platelets: transfuse if < 20 x 10⁹/L

Anticoagulant	Withholding	Reinitiation
Unfractionated Heparin (UFH)	do not withhold	NA
LMWH	do not withhold	NA
fondaparinux (arixtra)	do not withhold	NA
argatroban (acova)	do not withhold	NA
bivalirudin (angiomax)	do not withhold	NA
warfarin (coumadin)	* Target INR 3.0,* Consider bridging for hi	NA or same-day reinitiation for bridged patients
Apixaban (Eliquis)	do not withhold	NA
betrixaban (bevyxxa)	do not withhold	NA
dabigatran (pradaxa)	do not withhold	NA
edoxaban (savaysa)	do not withhold	NA
rivaroxaban (xarelto)	do not withhold	NA
plavix	do not withhold	NA
ticagrelor (brilinta)	do not withhold	NA
prasugrel (effient)	do not withhold	NA
cangrelor (kengreal)	* Defer procedure until off medication* If	* Patients receiving glycoprotein IIb/IIIa inhibitor are undergoing PCI
aspirin	do not withhold	NA
aspirin/dipyridamole (aggrenox)	do not withhold	NA
short-acting NSAIDs (half-life 2-6 h): e. ibuprofen, diclofenac, ketoprofen, indomethacin, ketorolac	do not withhold	NA
Intermediate-acting NSAID (half-life 7-15 h): e. naproxen, sulindac, diflunisal, celecoxib	do not withhold	NA
Long-acting NSAIDs (half-life > 20 h): e., meloxicam, nabumetone, piroxicam	do not withhold	NA
Long-acting abciximab (ReoPro)	Withhold 24 h before procedure	* Patients receiving glycoprotein IIb/IIIa inhibitor are undergoing PCI
Short-acting: eptifibatid (Integrilin), tirofiban (Aggrastat)	Withhold 4-8 h before procedure	* Patients receiving glycoprotein IIb/IIIa inhibitor are undergoing PCI
Clostrazol (Plieta)	do not withhold	NA or same-day reinitiation for bridged patients

Figure 1 (left): Iteration of the tool using Microsoft Excel's PivotTable feature.

Figure 2 (right): Iteration of the tool using Airtable's Interfaces.

Procedures
Arterial interventions: > 7-F sheath, aortic, pelvic, mesenteric

Risk
High

High Risk

	Medication	Withholding	Reinitiation
1	bivalirudin (angiomax)	* Withhold 2-4 h before procedure * Check aPTT	4-6 hours
2	Clostrazol (Plieta)	do not withhold	NA
3	rivaroxaban (xarelto)	* Defer procedure until off medication for: - 2 doses (CrCl 50 mL/min) - 2 doses (CrCl < 30-50 mL/min) - 3 doses (CrCl < 15-30 mL/min) * If procedure is STAT or emergent, use reversal agent (andexanet alfa)...	24 hours
4	aspirin	Withhold 3-5 d before procedure	Resume the day after procedure
5	betrixaban (bevyxxa)	* Withhold for 3 doses (113) * If procedure is STAT or emergent, use reversal agent (andexanet alfa) * Consider checking anti-Xa activity especially with impaired renal function	24 hours
6	apixaban (eliquis)	* Withhold 4 doses (CrCl 50 mL/min) or 6 doses (CrCl < 30-50)	24 hours

23 records