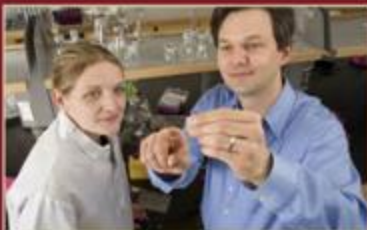


Coordination of Anticoagulation Care: The Evolving Role of Anticoagulation Clinics

Anne Rose, PharmD
Anticoagulation Stewardship Program
University of Wisconsin Hospital and Clinics



Anticoagulation Clinics

- In the US over 3,000 multidisciplinary anticoagulation clinics provide care to over 1 million anticoagulated patients
- Anticoagulation clinics are commonly led by pharmacists or nurses with specialized training
- Primary goal is to provide safe care for anticoagulated patients
 - Historically focused on warfarin management



Anticoagulation Clinics

- Anticoagulation clinic management associated with:
 - Increased time in therapeutic INR range
 - Reduction in bleeding events
 - Reduction in thromboembolic complications
 - Decreased hospital admissions
 - Increased knowledge and adherence
 - Decreased drug interactions
 - Increased patient and physician satisfaction

Anticoagulation Clinics - Evolving

- Anticoagulation clinics are not just for managing warfarin anymore!
- What are new roles for anticoagulation clinics?
 - Direct oral anticoagulation (DOAC) management
 - Specialized pulmonary embolism (PE) clinics
 - Expanding beyond anticoagulation management
 - Non-anticoagulation related interventions
 - New concepts: periprocedural clinics, medication safety clinics, incorporating population health concepts

DOAC Management

- Limited information on management programs for DOACs
- VA studied the management within their system
 - Patient selection, education, and monitoring (adverse events and adherence)

Program Parameter	# of Sites Proving Management
Review indications and contraindications	40/41 (98%)
Patient education	30/41 (73%)
Patient monitoring	28/41 (68.3%) <ul style="list-style-type: none">- 12 sites monitored for 3 months- 6 sites monitored for 6 months- 10 sites monitored indefinitely

- Higher adherence rates seen in clinics that offered monitoring programs

DOAC Management - Example

- What does a management program look like:
 - Selection
 - Education
 - Assessment at pre-defined times throughout length of therapy
 - Lab monitoring
 - Periprocedural planning
- Example patient assessment questions

Question	Response
1. Able to afford medication	Yes or No
2. Missed doses	Yes or No
3. Recent medication, over the counter or supplement changes	Yes or No
4. Unusual bruising, bleeding or serious fall or injury	Yes or No
5. New or unexplained trouble breathing, pain or swelling in the legs, sudden confusion or weakness along one side of the body or difficulty speaking	Yes or No
6. Upcoming procedures or surgery	Yes or No

DOAC Management - Example

- Monitoring within the first 12 months

	AC Clinic Visit	Assessment	Hgb	PLT	Cr (w/ CrCl)	ALT
Baseline	✓		✓	✓	✓	✓
1 week		✓				
1 month		✓				
3 months		✓	✓	✓	✓	
6 months		✓	✓	✓	✓	
12 months		✓	✓	✓	✓	✓

- Extended monitoring (> 12 months)

Patient		Assessment	*Hgb	*PLT	*Cr (w/ CrCl)	*ALT
CrCl: 15-29 mL/min	Q 3 months	✓			✓	
	Annually		✓	✓		✓
CrCl: 30-60 mL/min or Age ≥ 75 years	Q 6 months	✓			✓	
	Annually		✓	✓		✓
CrCl: > 60 mL/min	Annually	✓	✓	✓	✓	✓

* Lab results that fall outside of normal limits should be repeated at least every 3-6 months

Pulmonary Embolism Clinic

- Changes in management of PE
 - Increase in low risk PE discharges from emergency departments
 - Development of pulmonary embolism response teams (PERT)
- Role of a specialized PE clinic:
 - Assess selection of therapy
 - Determine duration of anticoagulant therapy
 - Evaluate individual patient risk of recurrence
 - Monitor/manage complications/symptoms (i.e. right heart strain, pulmonary hypertension)
 - Provide close follow up
- Goals of a specialized PE clinic:
 - Prevent readmissions
 - Early identification of complications
 - Quality anticoagulation management

Non-Anticoagulation Interventions

- Retrospective, single center cohort, pharmacist-led anticoagulation clinic
- Reviewed all non-anticoagulation related interventions
- Study included 252 patients with at least 1 intervention
 - 5846 encounters were reviewed
 - 2222 interventions identified

# Interventions	# Patients (%)
≥ 4	196 (73.1)
≥ 10	87 (32.5)
> 15	37 (13.8)

Non-Anticoagulation Interventions

Interventions Unrelated to Anticoagulation	# Interventions (%)
Continuity of Care <ul style="list-style-type: none"> Obtain medical records Facilitate refills Education on follow up care Schedule appointment with other care provider Facilitate obtaining a PCP Communicate medical information to other care providers 	252 (11.3)
Health Assessment and Triage <ul style="list-style-type: none"> Counsel on symptom management Referral to PCP or ED for treatment of acute event 	206 (9.3)
Acquire Necessary Diagnostics <ul style="list-style-type: none"> Order or consult a physician to order labs, radiology tests, etc 	16 (0.7)
Reconcile Medications <ul style="list-style-type: none"> Identify medication discrepancies 	1591 (71.6)
Modify Therapy <ul style="list-style-type: none"> Recommend medication/dose change based on drug interaction, contraindication, adverse drug reaction, cost, lack of efficacy, duplication, no indication, inappropriate dose, etc 	27 (1.2)
Drug Information and Counseling	130 (5.9)

Anticoagulation Clinics Reimagined

- Create a centralized model for periprocedural planning that includes all antithrombotic agents
- Incorporate a population health focus
 - i.e. Atrial fibrillation
 - Implement shared decision and risk stratification tools
- Incorporate other high risk medications
 - Antiplatelets
 - Amiodarone
 - Only 50% of patients receive appropriate monitoring of liver function, thyroid function, etc
 - Mineralocorticoid receptor antagonist (i.e. spironolactone)
 - Only 7.2% of patients receive appropriate potassium and creatinine monitoring

Summary

- Clinics should continue to assist with:
 - Anticoagulant selection
 - Patient education
 - Monitoring and assessment for safety and efficacy
 - Peri-procedural planning
 - Promoting adherence
- Considerations for the future of Anticoagulation Clinics:
 - Implement DOAC management programs
 - Expand to broader range of cardiovascular disease states and high risk medications
 - Incorporate population health concepts
 - Transition to Medication Safety Clinics