Implementation of a Direct Oral Anticoagulant Knowledge Assessment and Education Service

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Introduction

Over 17.5% of drug-related emergency department visits are attributed to anticoagulants.[1] As the use of direct oral anticoagulants (DOACs) rises, they are frequently prescribed inappropriately which further increases adverse events.[2] Education and follow-up requirements for patients receiving DOACs are not clearly defined. Furthermore, it is unknown if convenience associated with their use has de-emphasized the importance of specific education.

Pharmacy-driven services in the ambulatory care setting improve adherence, medication access, and laboratory monitoring.[3-4] The extent of benefit obtained from the education provided as part of these services it is not understood.

Objectives

Primary objective:

1. Compare anticoagulant knowledge tool (AKT) scores in patients prescribed a DOAC versus warfarin

Secondary objectives:

1. Characterize factors affecting patient understanding of key anticoagulation concepts and identify areas to improve prescribing
2. Determine whether a pharmacist-driven DOAC service improves anticoagulant knowledge and other outcomes

Methods

- Two-phase study in a university-based family medicine clinic

Phase 1

Identified current family medicine patients and anticoagulant users → 387 screened
- 69 with no appointment in 1 year
- 120 anticoagulant inactive/stopped
- 7 deceased; 1 secure chart

190 included

Obtained baseline data by chart review → Explored patient characteristics and needs

Contacted patients and conducted surveys → 60 reached; offered education and referrals as needed

Phase 2

Reassess knowledge 3 months post-intervention → Propose ongoing education and monitoring service

- Student's T test to assess differences in AKT scores
- Fisher's Exact to assess differences in categorical outcomes

Results

Table 1. Baseline Demographics

Demographic	Warfarin Users (n= 20)	DOAC Users (n= 40)
Age (yrs)*	64.8 ± 12.7	70.1 ± 12.8
Gender		
Male (%)	40.0	32.5
Race		
Caucasian (%)	90.0	95.0
African American (%)	5.0	2.5
Hispanic (%)	5.0	2.5
Insured		
Self-Pay (%)	0.0	0.0
Medicare (%)	75.0	65.0
Medicaid (%)	0.0	5.0
Private (%)	25.0	15.0
CHA_2DS_2-VASc*[t]	4 ± 1.1	4 ± 1.1
HASBLED*	1.4 ± 0.9	1.4 ± 0.8
Outside Prescriber (%)	30	55

* Expressed as mean ± SD

[t] CHA_2DS_2-VASc for atrial fibrillation patients only (n=9; n=29)

Table 2. Phone Survey

Anticoagulation Knowledge Tool*
Drug Name; Indication; Action; Frequency
Duration on Anticoagulation
Planned Duration of Therapy; Taking as Prescribed
Timing of Doses; Missed/Extra Doses; Abruptly Stopping
NSAID Risk; Other Drug Interactions; Alcohol
Procedure Notification; Informing Providers
Most Important Side Effect; 3 Signs to Watch For
3 Ways to Reduce Side Effects; Overdose
Basic Demographics; Highest Level of Education
Additional Survey Questions
Previous Education; Previous Anticoagulants
Importance of Follow-up/Monitoring; Adherence
Survey Results
60 completed surveys and targeted counseling encounters
1 patient believed apixaban required INR monitoring
1 patient taking apixaban as needed (1-2x/week)
Only 1 of 13 patients on a rivaroxaban dose ≥ 15 mg taking with food
1 patient taking rivaroxaban was avoiding vitamin k intake
Most expressed appreciation for the chance to learn more about their medications

*Validated Anticoagulant Knowledge Tool[5]

- Repeat surveys to evaluate effectiveness of pharmacist education intervention pending

Results cont.

Figure 1. Differences in Total AKT Score

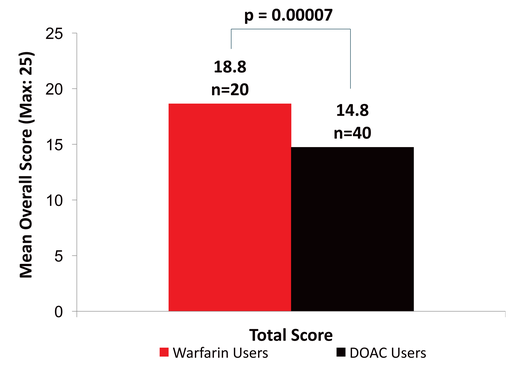

Figure 2. Individual Question Responses

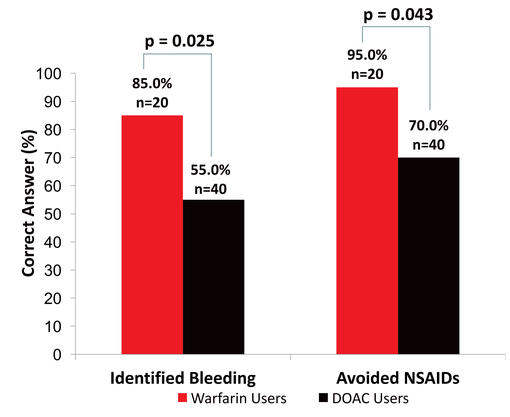

Table 3. Family Medicine Prescribed Anticoagulants

Intervention Identified	Warfarin Users (n= 27)	DOAC Users (n= 61)
Met criteria for clinic visit [n (%)]	9 (33.3)	23 (37.7)
Wrong dose [n (%)]	n/a	5 (8.2)
Poor adherence [n (%)]	2 (7.4)	5 (8.2)
Need for labs [n (%)]	8 (29.6)	21 (34.4)
Scheduled in clinic [n (%)]	0 (0.0)	6 (9.8)

Conclusions

- DOAC users were not as well educated about their medication, particularly as it relates to bleeding and serious drug interactions
- A pharmacist-driven DOAC education and monitoring service may improve utilization of high-risk medications
  - Given low contact rates, providing service at initiation of therapy may be more successful
- Patient education is needed and repeat education may be necessary to achieve scores comparable to warfarin users
- These data may be useful to providers in helping to guide safe prescribing
- Future Directions:
  - Repeat knowledge assessments in 3 months (phase 2)
  - Implement DOAC consult service accessible to family medicine providers in both inpatient and outpatient setting

Limitations

- Reflects outcomes from a single center
- Low phone contact rates
- Education assessment scores may be subject to voluntary response bias
- Potentially incomplete or inaccurate medical records
- Difficult to intervene and locate records for anticoagulants prescribed by outside providers

Literature Cited

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For Further Information

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