Stop the Clot: Should Emergency Clinicians Champion Stroke Prevention and Prescribe Anticoagulation for Patients With Atrial Fibrillation?

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Editor's Note: *You are reading the 69th installment of Annals of Emergency Medicine Journal Club. As the Journal Club enters its second decade of publication, we are making a number of changes to the format. The Journal Club format has been revised and will focus on a monthly succinct review of high-impact articles from this journal and other premier medical journals relevant to emergency medicine. The reviews are followed by questions demonstrating principles by which readers—be they clinicians, academics, residents, or medical students—may critically appraise the literature. We are interested in receiving feedback about this feature. Please e-mail journalclub@acep.org with your comments.*

ARTICLE IN REVIEW

Parkash R, Magee K, McMullen M, et al. The Canadian Community Utilization of Stroke Prevention Study in Atrial Fibrillation in the Emergency Department (C-CUSP ED). *Ann Emerg Med*. 2019; http://doi.org/10.1016/j.annemergmed.2018.09.001.

What Question Did This Investigation Aim to Answer?

Does an oral anticoagulation decision instrument and care bundle increase appropriate prescribing of oral anticoagulation for patients with atrial fibrillation at emergency department (ED) discharge?

What Study Design Did the Authors Choose?

Design: Multicenter, pragmatic, 3-phase, before-after study. Canadian Community Utilization of Stroke Prevention Study (C-CUSP ED). ClinicalTrials.gov Identifier: NCT02358655.

Setting: Five EDs in 3 urban communities in Canada.

Population: A total of 631 patients not previously receiving oral anticoagulation, with ECG-documented atrial fibrillation, who were discharged from the ED at their index visit. These patients were grouped into 3 cohorts: phase 1 (n=360), including the preintervention baseline patients; phase 2 (n=145); and phase 3 (n=126) as described below.

Intervention: Phase 2 consisted of decision instrument and care bundle targeting clinicians and patients to improve the prescribing and continuation of appropriately prescribed oral anticoagulation. Phase 3 had all the components of phase 2, plus a follow-up patient telephone call at 48 to 72 hours and an in-clinic visit with a cardiologist within 7 days of the initial ED encounter.

Primary and Secondary Outcomes: The primary outcome was rate of new oral anticoagulant prescriptions at discharge for eligible patients. The primary analysis was between phases 1 and 3. Secondary outcomes included rates of prescriptions between phases 1 and 2 and between phases 2 and 3. Additional outcomes included major bleeding, stroke, atrial fibrillation–related ED visits, and hospitalizations in phases 2 and 3.

How Did the Authors Interpret the Results?

For eligible patients, the rate of oral anticoagulation at ED discharge increased from 15.8% in phase 1 to 54.1% in phase 2 and 47.2% in phase 3 (unadjusted OR 7.10, 95% CI 3.33 to 15.13 and adjusted OR 8.03, 95% confidence interval 3.52 to 18.29 for phase 3 versus 1; unadjusted OR 8.64, 95% confidence interval 4.13 to 18.04 and adjusted OR 10.01, 95% confidence interval 4.38 to 22.86 for phase 2 versus 1).[1] No statistically significant difference in oral anticoagulation prescription was observed when phase 3 was compared with phase 2. There was no significant difference in the rate of stroke at 6 months between groups. There was no significant difference in major bleeding between the 3 groups. Minor bleeding was observed in 0.8%, 4.0%, and 1.0% of patients in phases 1, 2, and 3, respectively. There was a significant increase in minor bleeding only in phase 2.

Conclusion

A focused oral anticoagulation prescription intervention was associated with an increase in new oral anticoagulation prescriptions in the ED.

How Might This Study Affect Your Clinical Practice in the ED?

In this before-after study, the authors found that a decision instrument and care bundle increased oral anticoagulation after ED visits for patients with atrial fibrillation. The attributable stroke risk caused by atrial fibrillation is 15%, and suboptimal rates of antithrombotic therapy for patients with atrial fibrillation are currently observed.[2] This provides ED practitioners the opportunity to address stroke risk and influence downstream events for patients with atrial fibrillation.

DISCUSSION POINTS

1. *Why is the overall prescription of oral anticoagulation to eligible ED patients with atrial fibrillation low? What are some of the advantages and potential risks of initiating oral anticoagulation at ED discharge?*

There are likely a number of factors contributing to the low initiation of new oral anticoagulant therapies in eligible patients with atrial fibrillation and flutter.[2] Emergency clinicians may be averse to prescribing a class of medications with potential for life-threatening episodes of bleeding. This concern may be further complicated by the preventive, rather than curative, nature of the intervention. An illustrative example is the ED patient who receives a diagnosis of deep venous thrombosis or low-risk pulmonary embolism for which the emergency clinician is prescribing the oral anticoagulation for a diagnosed thrombus. Qualitative studies describe oral anticoagulation initiation for deep venous thrombosis or pulmonary embolism more acceptable to emergency physicians.[3,4] In contrast, initiating oral anticoagulation for a patient with atrial fibrillation has traditionally been deferred to providers with a continuous and long-term relationship with the patient. However, multiple studies have now shown that emergency clinicians can initiate oral anticoagulation in high-risk patients, leading to increased appropriate anticoagulation practices at follow-up.[1,2,5,6] Given that atrial fibrillation is often associated with large-vessel ischemic strokes,[2] initiation of anticoagulation early in a patient's course of illness is paramount to reducing his or her stroke-related morbidity and mortality.

2. *Despite a rigorous study design and individual site champions, the authors reported that the oral anticoagulation educational tool kit was used for only 15% of eligible patients in their study. How often do you incorporate other clinical decision aids (eg, History, ECG, Age, Risk Factors, and Troponin [HEART] score; pulmonary embolism rule-out criteria (PERC) score; Centor criteria) in your ED practice? How might a decision instrument to improve oral anticoagulation in atrial fibrillation be better integrated into clinical emergency medicine?*

Clinical decision instruments may have an important role in informing patient disease management, ED evaluations, and dispositions. New clinical decision instruments are derived frequently and often promoted as potentially practice altering. Unfortunately, few clinical decision instruments outperform clinical gestalt.[7] The introduction of smart phones and electronic health records into practice has reduced the necessity that decision instruments be parsimonious and easily calculated, such as the pulmonary embolism rule-out criteria rule, Centor scores, or National Emergency X-Radiography Utilization Study (NEXUS) criteria.[8-10] For example, the HEART score, a decision instrument for risk stratification of chest pain patients, may be easily calculated by using a number of available iOS or Android applications or calculators built into the electronic health record.[11] Clinical decision instruments must be internally valid (ie, reproducible), externally valid (ie, generalizable), and ideally compared to physician judgment and practice in implementation studies.[7,12,13] To integrate a tool to improve oral anticoagulation in atrial fibrillation into emergency medicine, the first step is to persuade emergency clinicians that we have a duty to initiate oral anticoagulation for eligible patients.[1,2] Occasionally, national professional societies or payers (eg, Medicare, Choosing Wisely Campaigns) may use financial incentives or penalties to motivate clinicians to change their prescribing behaviors.[9] Incorporating "real-time" best practice advisories into the electronic health record may also improve prescribing practices. Readers interested in more detailed discussion on clinical decision instruments are directed to the January 2014 and September 2017 Journal Club articles.[12,13]

3. *A critical aspect of any retrospective cohort study is the quality of the data obtained from review of patient medical records. What references are available to guide researchers, including residents completing their scholarly projects, in the proper methodology of medical record review?*

A critical starting point for all investigators, including residents completing scholarly projects through medical record review, is learning the common errors in chart reviews and strategies to minimize their influence on the quality of the data abstracted.[14,15] Gilbert et al[14] addressed the lack of methods in chart reviews in emergency medicine journals and suggested a 7-step process to improve on these methods. They focused on abstractor training, case selection, definition of variables,

standard abstraction forms, periodic abstractor meetings to address disputes, abstractor monitoring, blinding of chart reviewers, and testing of interrater agreement. Kaji et al[15] further expanded on ways to optimize data abstraction. The recommended improvements included ensuring that the necessary variables are in the selected charts, systematic abstraction methods, abstractor blinding, appropriate abstractor training and monitoring, and testing to ensure the abstraction is reliable. They also provided options for managing missing and conflicting data. These references are suggested reading for any investigator whose study design includes chart reviews.[14,15]

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