Journal Club Eastern Virginia Medical School
Article Appraisal Form

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CITATION: Stiell IG et al, **Outcomes for Emergency Department Patients with Recent-Onset Atrial Fibrillation and Flutter Treated in Canadian Hospitals.** Ann Emerg Med. 2017 May;69(5):562-571

I. **WHAT IS BEING STUDIED?**	
1. Study Objective	To evaluate the management and 30-day outcomes of recent onset afib/flutter.
2. Study Design	A prospective, cohort study in 6 academic EDs in Canada
3. Inclusion Criteria	"Clear history" of afib/flutter within 48 hours, OR, within 7 days who are adequately anticoagulated, OR, within 7 days and no left atrial thrombus on TEE.
4. Exclusion Criteria	-ACS -CHF exacerbation -Pneumonia -PE -Sepsis -already in the study -Not available for follow up -Not in afib/flutter at time of MD eval
5. Interventions Compared	Retrospective assessment of adverse outcomes in patients who were given anticoagulants vs. those who were not.
6. Outcomes Evaluated	Primary outcome: composite of death, CVA, ACS, HF, readmission for afib or recurrent cardioversion for afib.
II. **Are the results of the study valid**	
1. Was the assignment of patients randomized?	No. This is a retrospective cohort study. Patient were consecutive however so little risk for selection bias.
2. Was randomization concealed (blinded)?	N/a

3. Were patients analyzed in the groups to which they were randomized?	N/a
4. Were patients in the treatment and control groups similar with respect to known prognostic factors?	N/A Overall 630/1091 has CHADS2 scores >1
III. **Did experimental and control groups retain a similar prognosis after the study started (answer the questions posed below)?**	
1. Were patients aware of group allocation?	N/a. However, patients would have been aware if they were in the subset that received anticoagulation
2. Were clinicians aware of group allocation?	N/a. However, all physicians would be aware of whether or not they Rx'd anticoagulation
3. Were outcome assessors aware of group allocation?	It does not appear that those performing data collection or statistical analysis were blinded to study objectives.
4. Was follow-up complete?	Yes. It appears follow up was complete for all 1,091 patients. However, follow up seemed to consist of PCP/inpatient HER searches, as well as prescription database searches. I see no evidence that they contacted each patient to inquire about their outcome (that could be missed by electronic info searches alone). Likely used Canadian healthcare ID numbers.
IV. What were the results? Answer the questions posed below	
1. How large was the treatment effect? (Difference between treatment and control group).	Cardioversion (electrical or chemical) was successful in 80% of patients. 9% total were admitted. At 30 days, only 49% of patients with a CHADS2 score of 1 or greater were anticoagulated. 15% had a return ED visit related to afib. 10% had an adverse event: One CVA, in an appropriately anticoagulated 81 y/o pt, and 4 deaths unrelated to afib (cancer x2, renal/heart failure, resp failure). 6.5% had to be cardioverted, and 3.2 had admissions.

2. What was the estimated treatment effect at a 95% confidence interval? (Precision)	There was non-subgroup analysis of the difference in outcomes between appropriately anticoagulated (49.2% at 30D) vs non-anticoagulated patients. That stated there was one documented CVA @ 30D They did note that factors associated with adverse outcome on univariate analysis were -Pulm congestion on CXR. OR 7.37 -H/o CVA/TIA. OR 2.09 -Hours from onset of a fib. OR 1.03/hour
V. **Will the results help me in caring for my patients? (Applicable?)**	
1. Were the study patients similar to my patient?	Yes. Overall these pts have similar co-morbidities and are presenting to a similar (academic ED) treatment setting as my patients. However, they are different in that they are probably healthier than our patients, they have good follow up, a national health coverage system, and are more likely to be cardioverted and discharged.
2. Were all clinically important outcomes considered?	The composite outcomes were all pt centered (death, CVA, admission, etc). No economic analysis. Is ED cardioversion more economically beneficial approach? No bleeding assessment of patient who were anticoagulated
3. Are the likely treatment benefits worth the potential harm and costs?	Again, as this was not an RCT, there was no intervention. That being said, there is good evidence to suggest that based on their CHADS2 score.

Study Limitations

-Observational cohort study
No blinding of data assessors which would have been easy and would avoid ascertainment bias.
-Unclear how follow up was obtained or if patients who went outside their EHR were missed
-We don't always have the reason that pts weren't anticoagulated (contraindications, didn't follow up, etc.)
-Used CHADS2 instead of CHA2DS2VASc
Insufficient N and length of f/u to adequately assess stroke risk. 29 pts missed after hours

Clinical Bottom Line:

-This study will make me more likely to cardiovert new onset afib patients, as it appears overall to have a good risk profile and will likely decrease need for hospital admission. I will also pay closer attention to the CHADS assessment and need for anticoagulation. The challenge is how to get them their prescription filled, and good follow up.