

TIA/A-FIB

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I HAVE NO RELEVANT
DISCLOSURES

OBJECTIVES

- Discuss role of EDOU in managing TIA and atrial fibrillation
- Focus on high yield aspects of the protocol to improve performance
- Review relevant recommendations from ACEP clinical policy on TIA

NEUROLOGICAL POLICY
Clinical Policy: Critical Issues in the Evaluation of
Adult Patients With Suspected Transient Ischemic
Attack in the Emergency Department

TIA

DEFINITION

- Transient Ischemic Attack
 - Cerebral ischemia without infarction
 - Regardless of time element
 - Assumes normal neuro exam
 - Requires neuroimaging (eg MRI) to differentiate from small CVA

ED EVALUATION

- Emergent Imaging
- Early Discharge?

ED EVALUATION

- Emergent Imaging
 - ACEP Level C recommendation to obtain non-contrast HCT if MRI not readily available.
 - HCT will identify some TIA mimics (1.2%)
 - HCT can't be used to identify patients at high short-term risk for stroke
- Early Discharge?

ED EVALUATION

- Emergent Imaging
- Early Discharge?
 - Level B recommendation – Don't use ABCD2 score to determine who can be discharged from the ED.
 - Other risk scores (ABCD3, ABCD2-I) are not sufficiently sensitive to use as a risk stratification instrument

DISPOSITION - EDOU

TRANSFER CRITERIA

- Transient ischemic attack – resolved acute deficit, not crescendo TIAs
- Sub-acute stroke (onset >72hr, NIHSS<3, open by neurology in the ED)
- Negative HCT (unless prompt MRI planned; with a normal exam and not high risk for bleed)
- Workup can be completed within ~18hrs

EXCLUSION CRITERIA

- Head CT imaging positive for bleed, mass, or acute infarction
- Known extra-cranial embolic source – history of atrial fibrillation, cardiomyopathy, artificial heart valve, endocarditis, known mural thrombus, or recent MI.
- Known carotid stenosis (>50%)
- Any persistent acute (<72 hour) neurological deficit or crescendo TIAs
- Non-focal symptoms – ie confusion, weakness, seizure, transient global amnesia
- Hypertensive encephalopathy
- Unable to ambulate independently, perform self care, and pass ED dysphagia screen
- Severe headache or evidence of cranial arteritis
- Acute medical or social (poor home support) issues requiring inpatient admission
- Prior large stroke – making serial neurological examinations problematic
- Pregnancy

PATIENT CARE - EDOU

OBSERVATION UNIT INTERVENTIONS

- Neuro checks Q-2hr – to detect stroke, crescendo TIA, etc.
- Neurology consult – to detect occult stroke.
- Fasting lipid panel, HgA1c
- Carotid imaging with MR/MRA – to detect surgical carotid stenosis (>50%) and microinfarct
 - If contraindications to MR/MRA and good renal function, then CTA of head and neck vessels
 - If contraindications to MR/MRA and good renal function, then Doppler of neck vessels
- 2-D Echocardiography as indicated by neurology – to detect a cardioembolic source.
- Cardiac monitoring – for at least 12 hours for paroxysmal atrial fibrillation
- Appropriate antiplatelet therapy (Aspirin => If on ASA then Plavix OR Aggrenox)
- Stroke preventive educational materials (lipids, smoking, DM, HT, obesity, alcohol, stroke)
- Subacute strokes – rehab evaluation and outpatient treatment planning

EDOU WORK-UP CONSIDERATIONS

- Cervico-cerebral vascular imaging
 - Level C recommendation – Carotid US is as accurate as CTA/MRA
- Echo

EDOU WORK-UP CONSIDERATIONS

- Cervico-cerebral vascular imaging
- Echo

Early Echocardiography Has a Low Yield in Patients with Transient Ischemic Attack

Elie-Hermann, MD,¹ Ghada A. Mahomed, MD,¹ Michael Ross, MD,¹ Juan Hockenberry, MD,² Robin Dhali, MD,¹ and Fadi Nabab, MD¹

- Outpatient TTEOK for patients with
 - No previous cardiac disease or stroke
 - Normal EKG and telemetry
 - Normal cardiac exam

DISPOSITION FROM EDOU

DISPOSITION

Home

- No recurrent deficits, negative workup
- Clinically stable for discharge home (on Asa - 81mg/day)

Hospital

- Recurrent symptoms / deficit
- Evidence of treatable vasculature disease - ie >50% stenosis of neck vessels
- Evidence of embolic source requiring treatment (ie heparin / coumadin) - ie mural thrombus, Paroxysmal atrial fibrillation
- Unable to complete workup or safely discharge patient within timeframe
- Physician judgment

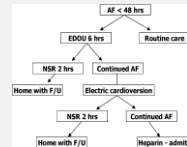
TIA - CONCLUSIONS

- ABCD2 score not sensitive enough to identify low risk patients
- HCT recommended if MRI not readily available
- Echo not necessary for patients with no cardiac history/normal exam/diagnostics

ATRIAL FIBRILLATION

DECKER ET AL

- Ann Emerg Med 2008
- 153 ED patients randomized to EDOU vs hospital inpatient
- 85% of EDOU patients converted to sinus vs 73% of inpatients
- Median LOS 10.1 vs 25.2 hrs
- 9 EDOU patients required admission
- 11% of EDOU patients had recurrence vs 10% of inpatients



ED CARE

- Rate vs Rhythm control strategy
 - > 65 - no difference in 5 year outcomes with rate vs rhythm control
 - < 65 - benefit from rhythm control
 - Atzema, CL Ann Emerg Med 2015
- Cardioversion contra-indications
 - Unknown time of onset
 - Onset > 48 hours; not therapeutic on anticoagulation for 3 weeks
 - TIA or stroke in 6 months
 - Valve disease



ED CARE

- Rate control - everyone else
 - Resting HR < 80 bpm ACC/AHA class IIIa recommendation
 - "Lenient Strategy" HR < 110
 - For asymptomatic patients
 - Preserved EF
 - Class IIb recommendation
- Beta blocker vs Calcium channel blocker
 - Fromm et al J Emerg Med 2015
 - Diltiazem more effective in achieving rate control in ED
 - Convenience sample
 - Stopped early
 - Avoid crossing classes



EDOU PATIENT SELECTION

TRANSFER CRITERIA

- Onset clearly less than 48 hours
- Stable BP, HR under 110 consistently for one hour (with treatment)
- No chest pain when rate controlled
- Normal chest X ray
- No evidence of acute comorbidities - MI, CHF, PE, CVA, etc.
- Cardiologist agrees with plan to observe (if notified)

EXCLUSION CRITERIA

- HR > 110 despite ED meds
- IV vasodictive drips required (ie diltiazem)
- Hemodynamically unstable - i.e. BP
- Ongoing ischemic chest pain after rate control
- Onset over 48 hours, or unknown from history
- Acute comorbidities - Evidence of Acute MI, CHF, PE, Sepsis, CVA / embolic event,
- Recent comorbidities - Stroke/TIA within 3 months, Acute MI within 4 weeks.
- Chronic Atrial Fibrillation.
- Cardiologist or ECP chooses inpatient admission

EDOU SELECTION PITFALLS

- HR prior to transfer
 - <100-110 at rest
 - <120-130 when ambulatory
- Co-morbid conditions
 - Sepsis
 - CHF



EDOU MANAGEMENT

- Continue rate/rhythm control strategy
- Cardiac monitoring
- Cardioversion
- Anticoagulation
 - DOACs vs warfarin vs LMW heparin
- Echo
- Education

MANAGEMENT PITFALLS

- Ability to sedate in ED/OU
- Involvement of cardiology
- Need/availability of TEE

AF + ANTICOAGULATION

Table 2.—The 2009 Birmingham Schema Expressed as a Point-Based Scoring System, With the Acronym **CHA₂DS₂-VASc**

Risk Factor	Score	CHA ₂ DS ₂ -VASc score	
		0	Risk of stroke each year
		1	1.9% (1 in 52)
		2	2.2% (1 in 45)
Congestive heart failure/LV dysfunction	1	3	3.2% (1 in 31)
Hypertension	1	4	4.0% (1 in 25)
Age ≥ 75 y	2	5	5.7% (1 in 18)
Diabetes mellitus	1	6	6.7% (1 in 15)
Stroke/TIA/TE	2	7	8.0% (1 in 13)
Vascular disease (prior myocardial infarction, peripheral artery disease, or aortic plaque)	1	8	9.0% (1 in 11)
Age 65-74 y	1	9	9.7% (1 in 10)
Sex category (ie, female gender)	1	10	10.3% (1 in 10)
LV = left ventricular; TE = thromboembolism. See Table 1 for expansion of other abbreviations.		11	11.8% (1 in 9)

AF + ANTICOAGULATION

HAS-BLED score

Criterion	Points	HAS-BLED score	Stroke per 100 patients per year
A) Hypertension	1	0	1.5%
A) Abnormal renal or liver function (1 point each)	1 or 2		
B) Stroke	1	1	1.0%
B) Bleeding	1	2	1.8%
C) Labile INR	3	3	2.2%
D) Elderly (> 65 years)	1	4	3.7%
D) Drugs or alcohol (1 point each)	1 or 2	5	5.0%

Note: HAS-BLED has been validated for warfarin, but not for the new anticoagulants.

Source: G. L. Roth et al. *CMAJ* 2009;181(18):1283-1288.

DISPOSITION

DISPOSITION PARAMETERS

Home

- Patient converts and remains in NSR for over one hour
- Negative diagnostic testing
- Stable condition
- Discuss home medication therapy with cardiologist

Hospital

- Failure to maintain control of rate under 100
- Positive diagnostic testing (as indicated for MI, PE, CHF, etc.)
- Unstable condition

AF CONCLUSIONS

- Determine rate vs rhythm control strategy
- CCB or Beta blocker similar efficacy
- EDOU good location for continuing ED strategy
- Start anticoagulation in appropriate patients

