Stroke Disclosures

• Speaker for Boehringer-Ingelheim
Stroke 2016
Summary of Recommendations

- American Stroke Association
- American Heart Association
- American Academy of Neurology
- Jacoby
Stroke 2016
Summary Content

• Primary Stroke Prevention
• Acute Stroke Treatment
• Secondary Stroke Prevention
Healthful Lifestyles-always

- Diet/Nutrition
- Physical Activity
Diet/Nutrition

• Reduce Sodium <2300 g/day
• Increase Potassium to 4700 mg/day
• Eat fruits, vegetables, low fat
• DASH style for Blood pressure reduction
• Mediterranean Diet
Physical Activity

• Be active
• Aerobic activity 40 mins/day 3x/week
Risk Factors

my.americanheart.org/cvriskcalculator
Blood pressure

• Annual Screen 120-139/80-89
• Target treatment <140/90
• Self monitoring
Dyslipidemia

- Statin therapy if significant 10 year stroke risk
- Non statins if statins not tolerated but no established efficacy
Dyslipidemia

- Age > 21 and LDL > 190 mg/dL
  - High dose
- Age > 21 and LDL 70-189 mg/dL
  - Mod-High dose
Dyslipidemia

• High Dose Statins reduce LDL >50%
  – Atorvastatin 80 mg
  – Rosuvastatin 40 mg

• Moderate Dose Statins reduce LDL 30%
  – Atorvastatin 10 mg
  – Rosuvastatin 10 mg
  – Pravastatin 40 mg
  – Lovastatin 40 mg
  – Fluvastatin 40 mg
Obesity/Fat

- BMI 25 Km/m2
  - Weight reduction
Diabetes

- Target BP < 140/90
- Treatment with statin
- No definite evidence for aspirin
Smoking

• Don’t
• Consensus that drug therapies are good
Atrial Fibrillation

- CHAD2-DS2-VASc score 0
  - No treatment ok
- CHADs score 1
  - Unclear
Atrial Fibrillation

- CHADs score $\geq 2$
  - Warfarin target INR 2-3
  - Dabigatran, apixaban, rivaroxaban ok
- LAA closure may be considered if risk of anticoagulation high
Other Cardiac

- Mitral stenosis with embolic event
  - Anticoagulation
- Mitral stenosis with LA thrombus
  - Anticoagulation
- Aortic mechanical valve
  - Warfarin (INR 2-3) + aspirin 81 mg
  - With risk factors (INR 2.5-3.5) + ASA 81 mg
- Other mechanical valves (INR 2.5-3.5) + ASA 81 mg
Other Cardiac

• Bioprosthetic valves
  – Warfarin (INR 2-3) for 3 months
  – Aspirin chronically

• Masses
  – excise
Carotid Stenosis (asymptomatic)

- ASA + Statin
- >70% stenosis
  - Surgery (CAS in highly selected patients)
- >50% stenosis
  - Yearly ultrasound
- Screening low risk patients not recommended
Other cardiac

- CHF
  - Anticoagulants or antiplatelets
- STEMI + mural thrombus/anterior apical akinesis or dyskinesis
  - Warfarin
- Mitral stenosis and LAE >55mm
  - Consider anticoagulation
- No treatment for asymptomatic PFO
Migraine with aura

- No smoke
- Alternates to Ocs
- Treat migraine frequency
- No PFO closure
Alcohol consumption

- \( \leq 2 \) drinks/day for men
- \( \leq 1 \) drink/day for women
Sleep apnea

- Screen
- Treat
Antiplatelets

- Aspirin 81 mg/day
  - for women with high risk of stroke
  - CKD (GFR 30-45)
- Cilostazol
  - PAD
- No benefit in low risk patients
- No evidence of benefit with other agents
Acute Stroke 2016
Acute Stroke Evaluation

- Avoid delays of blood monitoring
  - All patients
    - Lytes, renal function, blood glucose, cbc, PT/INR/PTT, O2 sat., ECG, troponin
  - NC HCT, MRI, CTA, MRA, CT or MR perfusion studies should be utilized before IV or IA.
- NC HCT
  - Bleed or >1/3 frank hypodensity or edema excludes
Acute tPA treatment

- IV fibrinolytics within 60 minutes of arrival
- If IV tPA
  - Bp lowered to 185/110 before and 180/105 after
- 0.9 mg/kg (max 90 mg) within 3 hours of symptom onset
  - 3-4.5 hours except if:
    - >80
    - Anticoagulation
    - NIHSS >25
    - Imaging >1/3 territory
    - h/o stroke and diabetes
Acute tPA treatment

- Non VKA/NOACs exclude within 48 hours or testing that demonstrates negligible activity.
  - idarucizumab (Praxbind) may allow for immediate administration for patient who have received dabigatran (Pradaxa)
Acute stroke treatment

- O2 sat >94%
- Treat hyperthermia
- Treat hypoglycemia ≤ 60 mg/dL
- Treat hyperglycemia ≥ 180 mg/dL
- Maintain normovolemia with isotonic fluids
- Intubate if airway issues
- Avoid indwelling urinary catheters
Acute stroke treatment

• Anticoagulation
  – Emergent use for stroke or for non stroke in moderate to severe strokes contraindicated

• Antiplatelets
  – ASA 325 mg within 48 hours
  – No other agents as first dose
Acute stroke treatment
Endovascular

- 2013 Trials
  - IMS III
  - MR RESCUE
  - SYNTHESIS Expansion

- All suggested that endovascular therapy was no more effective than intravenous t-PA alone.
Acute stroke treatment
Endovascular

• 2015 Trials
  – MR Clean
  – ESCAPE
  – SWIFT-PRIME
  – EXTEND-IA
  – REVASCAT
  – All showed similar benefit of intravenous thrombolysis with endovascular therapy over intravenous alone.
Endovascular Acute Stroke Therapy (study summary)

- Intravenous thrombolytic (t-PA mostly) within 4.5 hours to approximately 1300 patients.
- Intraarterial treatments with thrombectomy devices up to 6 hours from symptom onset
  - No age limit
  - Median time to groin puncture 185-269 mins (115-340)
  - NIHSS median 16-17 (3, 13-20, 30)
  - Anterior circulation occlusion with small Core lesion or high ASPECTs score.
  - Benefit 1/3-1/7 for mRS of 2 or less
  - No difference in death or symptomatic hemorrhage
General Care

- Specialized units
- Standardized order sets
- SQ anticoagulants for DVT prevention
- ICS for non anticoagulant patients
- NG feeding 2-3 weeks before PEG
- Swallow assess before oral
- No routine bladder catheters
- Early mobilization
Secondary Stroke/TIA Prevention 2016
Hypertension

- **Previously untreated**
  - may start after 2 days if bp \( \geq 140/90 \)

- **Previously treated**
  - Restart after 2 days
Dyslipidemia

- Intensive statin all TIA/Stroke
  - Best evidence for atorvastatin LDL > 100
Diet/Nutrition & Exercise

- If physically able, refer to comprehensive program
- Exercise same as pre stroke
- No vitamins
- Reduce sodium to < 1.5 g/day (2.4 g/day an acceptable goal)
- Mediterranean diet
Sleep Apnea

• Consider all patients
Carotid Stenosis

• CAS alternative to CEA
  – >50% stenosis by cath (select individuals)
  – >70% stenosis by non invasive
  – Experienced operator
  – Within two weeks

• CEA for older than 70
Intracranial Disease

- **Stroke/TIA ≤ 30 days**
  - Stenosis >50%
    - Bp <140 + aspirin + high intensity statin
  - Stenosis >70%
    - High intensity statin + Clopidogrel x 90 days + ASA

- **Angioplasty**
  - Stenosis <70%
    - No angioplasty or stenting
  - Stenosis >70%
    - Bp + statin first, most instances investigational
Atrial Fibrillation

- **Non valvular**
  - VKA (warfarin), apixaban and dabigatran (class I), rivoroxaban (class II)
  - Combination with antiplatelet possible with acute coronary or following stent
  - ASA if anticoagulant intolerant
  - Start within 14 days with no contraindications
  - Closure uncertain
MI

- Warfarin (INR 2-3) x 3 months
  - Acute anterior, STEMI with apical akinesis, or dyskinesis
  - Non VKA if warfarin intolerant
Cardiomyopathy

- **Warfarin (INR 2-3)**
  - Thrombus
  - Non VKA if warfarin intolerant
Valvular Disease

- **RHD + Afib**
  - Warfarin (INR 2-3)
  - ASA if adequate VKA treatment

- **All non mechanical valves**
  - Antiplatelet

- **Mechanical Valves**
  - Aortic
    - Warfarin (INR 2-3) + asa
  - Mitral
    - Warfarin (INR 2.5-3.5) + asa
Aortic Arch Disease

- Antiplatelets
- No anticoagulants
- Statin Therapy
Antiplatelets

- Antiplatelets for most stroke
- ASA + Clopidogrel x 90 days for acute stroke (long term without benefit and with increased risk of bleeding)
- Combination with warfarin typically not indicated except stenting or special circumstances
PFO

- Antiplatelet
- PFO + venous source
  - Anticoagulate
- PFO + cryptogenic
  - No evidence to support closure
Stroke Prevention 2016
Intersection of Cardiology & Neurology
Summary of Recommendations

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