INTRODUCTION

Problem: reduce risk factors to prevent average 9 strokes in each family physician’s practice

Objectives: 1. Primary Prevention: A. reduce risk factors to prevent the average prevalence of nine new strokes in each family physician’s practice; B. detect patent foramen ovale (25% of population) by echocardiogram, assessing stroke risk and refer cardiology assessment for device to close foramen and stop shunt; 2. Secondary Prevention of further strokes

Design: Literature Review

RESULTS: Primary Prevention

- PRIMARY PREVENTION: Context
- Stroke is third leading cause of death in Canada
- Annual VID of 50,000 strokes and TIA’s in Canadian emergency departments or acute inpatient care
- 400,000 Canadians live with effects of a stroke (~1/3 of all hospitalizations for 44,589 family physicians)
- For each symptomatic stroke, estimated 9 covert strokes resulting in subtle changes in cognitive function and processes

89% of population-attributable risk factors are modifiable: Stroke odds in INTERSTROKE study Risk factor

- Hypertension
- Heavy alcohol use
- Smoking
- Other risks: dyslipidemia, diabetes, BMI >23, diet low fruits/vegetables, high sodium, low physical activity levels

PRIMARY PREVENTION: Should aspirin be prescribed?

- Aspirin: Low dose aspirin not recommended for primary prevention of a first cardiovascular event for these individuals:
- Evidence Level
- hypertension, smoking, obesity, and other vascular risk factors
- healthy older individuals without vascular risk factors
- uncertain benefit with aspirin in older individuals

The evidence for and against ASPIRIN is from three (2018) RCTs in individuals with no previous cardiovascular disease, median follow-up 4.7 to 7.1 years

- ARRIVE (2018) men n= 85, women n= 254, 83% cardiovascular risk factors and women n= 30 years with 5 or more risk factors, excluded diabetics
- ASSURE (2018) men n= 157, women n= 157, 11% diabetes
- ASCEND (2019) men n= 145 and women n= 145, stroke in 1200 days, type I or type 2 diabetes

N.B., no randomized trials have addressed the effectiveness of aspirin to prevent stroke or transient ischemic attack

PRIMARY PREVENTION: Detecting Patent Foramen Ovale

- Patent foramen ovale (PFO) occurs in 25% of the population
- Cardiologists have published multiple systematic reviews on PFO. There is no concerted national detection strategy
- Thus family physicians need to be the first to identify PFOs, document for interventional shunt closure, order echocardiogram with counting of bubbles passing across the inter-atrial shunt, refer to cardiology for potential placement of device to close foramen

- Risk of PFO for patient if siblings have shunt: RR 6.86 (95% CI 5.75 to 8.48)
- If 2nd degree relatives

OUTCOMES OF SHUNT PLACEMENT Systematic review and network analysis (Mir BMJ 2018): 10 RCTs (n=4416, average age range 44.2-63.6, so advice is for patients >60)

- Risk
  - Risk with RPO closure + antiplatelet therapy
  - Risk with only antiplatelet therapy

- Ischemic stroke
  - 13/1000
  - 100/1000

- TIA
  - 28/1000
  - 34/1000

- Stroke
  - 17/1000
  - (mostly in 1st month after device placement)

- Secondary Prevention of Stroke

12 lead ECG to detect atrial fibrillation/flutter in suspected ischemic stroke or TIA

24 hour ECG monitoring to detect paroxysmal AF in suspected ischemic stroke or TIA

饮 at least 3 weeks ECG monitoring if acute embolic ischemic stroke or TIA unattended source and antiplatelet medication

If ischemic stroke or symptomatic TIA and 50-99% carotid stenosis, MRI (better than CT); urgent revascularisation of 70-99% stenosis

METHODS

SEARCH: Medline and Embase to 5 February 2021: search terms TIA, prevention, therapy, systematic review, meta-analysis

RESULTS: Secondary Prevention

- CANADIAN STRATEGY: Canadian Stroke Best Practice Recommendations for Secondary Prevention (2021)

1. React promptly to a TIA
    - Risk of stroke is highest next 2 days; then in next 90 days 12%-20% over 5 years 3 times greater

2. Treat risk factors: systematic review of 147 RCTs
    - BP decrease 10 mm Hg systolic and 5 mm Hg diastolic
    - Treating to new targets (NTM) trial: goal

Rapid access to TIA/stroke clinics reduces risks

- Lipid
  - LDL < 2 mmol/l or > 50% reduction LDL from baseline if ischemic stroke or TIA
  - LDL < 1.8 mmol/l if stroke and acute coronary syndrome or coronary artery disease

- Diabetes
  - HbA1c > 7 mmol/l and to achieve this pre-gradual glucose to 7 mmol/l and 2 hour post-prandial to 10 mmol/l and 5 to 8 mmol/l (Evidence C)

- Tight control of glucose in short duration of diabetes, no evidence significant cardiovascular disease and longer life expectancy provided no significant increase in hypoglycaemias

- DOAC (direct-acting oral anticoagulants)

- Warfarin
  - Mechanical heart valve, DOACs are contraindicatedB