

What's new in best practice stroke prevention and diagnosis

Dr. Albert Jin

Associate Professor, Division of Neurology

Department of Medicine, Queen's University and KHSC

March 20, 2018

Presenter Disclosure

Faculty: Dr. Albert Jin

Relationships with commercial interests:

None

Potential for conflict(s) of interest:

None

Outline

- BP, lipid, antiplatelet, and arterial dissection management
- Timing of initial TIA assessment
- What to do about PFO?

Objectives

- Review changes to BP, lipid, antiplatelet and cervicocephalic arterial dissection management
- Learn when to send the patient to ER and when to send to Stroke Clinic
- Review recommendations for PFO closure

<http://www.strokebestpractices.ca/prevention-of-stroke/>

The screenshot displays the Canadian Stroke Best Practices website. At the top, there is a search bar and social media icons. Below this is a banner for 'Rapid Response' featuring a heart icon and the text 'Canadian Stroke Best Practices'. A navigation menu includes links for HOME, ABOUT US, NEWS, EVENTS, RESOURCES, LINKS, and CONTACT US, along with a 'FRANÇAIS' link and a 'PRINT' button.

The main content area is titled 'Prevention Of Stroke' and is part of the 'Canadian Stroke Best Practice Recommendations > Prevention Of Stroke' section. It indicates the '6th Edition' was '2017 UPDATED - October 2017'. A sidebar on the left lists 'RECOMMENDATIONS' with a tree view showing categories like Overview, Methods and Knowledge Exchange, Recognition of Stroke, Prevention of Stroke, Hyperacute, Acute Inpatient, Rehabilitation, Transitions, Mood, Cognition & Fatigue, Teletroke, Stroke In Pregnancy, Pediatric Stroke, and Appendices.

The main text area contains the following sections:

- Secondary Prevention of Stroke Update 2017 Module Overview**

This Secondary Prevention of Stroke module focuses on management recurrent stroke risk reduction in patients who have experienced an initial stroke or transient ischemic attack. In some cases, this module will also guide healthcare providers with guidance for individuals at high risk of a stroke or TIA based on current health status and the significant presence of one or more vascular risk factors.
- Notable Updates in CSBPR Secondary Prevention of Stroke 2017**

The 2017 update of the Canadian Stroke Best Practice Recommendations Secondary Prevention of Stroke module reinforces the growing and changing body of research evidence available to guide stroke prevention services. A coordinated and organized approach to assessment and aggressive risk factor management is emphasized throughout this module.
- Highlights of significant updates and new additions to the Secondary Prevention of Stroke best practice recommendations for 2017 that are based on new and emerging evidence include:**
 - addition of a framework for providing stroke prevention services, and a detailed list of care elements that should be included to distinguish stroke prevention services;
 - revisions to the recommendations for the triage and assessment of risk of recurrent stroke after TIA/minor stroke and suggested urgency levels for investigations and initiation of management strategies (Section 1);
 - smoking cessation has been added to the lifestyle section rather than a separate section (Section 2);
 - minor updates to blood pressure management, lipid management and diabetes and stroke sections to reflect recent clinical trial releases and guideline updates by the respective medical societies (Sections 3, 4, 5 respectively);
 - refinements to stroke prevention and management of atrial fibrillation and anticoagulant use (Section 7);
 - clarifications on timing for carotid interventions (Section 8);
 - antithrombotic management in people with cervicoccephalic artery dissection
 - With the recent completion of the REDUCE and CLOSE trials, and long-term follow-up from the RESPECT trial, the recommendations for people with patent foramen ovale have been updated (Section 9);
 - Heart failure has been added to the Cardiac Issues section (Section 9);
 - updates to Heart and Stroke Taking Charge patient information on best practices related to stroke prevention http://www.strokebestpractices.ca/wp-content/uploads/2014/08/HSF_SBP_PatientsGuide_F14_EN_July2014_FINAL.pdf
 - updates to Heart and Stroke public information on risk factors for heart disease and stroke <http://www.heartandstroke.ca/media/pdf-files/ave-health-information-catalogue/en-are-you-at-risk.ashx?la=en&hash=51092238095455440831E7FCE37C9F518CB29297>
 - updates to the HSF Stroke Assessment and Prevention Pocket Guide to align with all updates to the recommendations in this module http://www.strokebestpractices.ca/wp-content/uploads/2017/07/002_17_CSBP_StrokeAssessPocketGuide_7.24.17_EN_v6_L6.pdf
 - Sleep Apnea and Stroke Prevention. Sleep apnea is a recognized risk factor for stroke, and a condition that appears in some patients both before and following a stroke. However, the recently released findings of the SAVE trial (2016) has demonstrated that although treatment with CPAP of moderate-to-severe sleep apnea in patients with a history of coronary and cerebrovascular disease is associated with benefits including reduced daytime sleepiness and improved health-related quality of life, there is insufficient evidence to recommend CPAP for secondary stroke prevention, and we do not recommend routine screening of patients with stroke for OSA. In light of the SAVE results, sleep apnea screening and treatment are no longer routinely recommended for secondary prevention of stroke and accordingly have removed recommendations for universal screening and treatment in stroke patients. Screening and treatment for sleep apnea symptoms should be performed as part of routine primary care based on the presence or absence of sleep apnea symptoms, as is currently done for patients without stroke.

A 'RESOURCES' sidebar on the right lists various materials: Core Elements of Delivery of Stroke Prevention Services, Stroke Assessment and Prevention Pocket Cards, Taking Action for Optimal Community and Long-Term Stroke Care, Stroke Best Practice Webinars, Taking Action Towards Optimal Stroke Care - Overview, and Teletroke Implementation Toolkit.

CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Secondary Prevention of Stroke Update 2017 (FINAL)

*Wein T, Gladstone D (Writing Group Chairs) on Behalf of the
Canadian Stroke Best Practice Recommendations
SECONDARY PREVENTION of STROKE Writing Group*

- <http://www.strokebestpractices.ca/wp-content/uploads/2018/03/CSBPR2017-SPoS-Module-Master-FINAL-ENGLISH-without-Appendix-Four.pdf>

Blood pressure management

- BP target remains 140/90 for most patients
 - 130/80 for patients with diabetes
- But, for patients with subcortical infarcts due to small vessel ischemic disease, the systolic target is now 130

Lipid management

- LDL < 2.0 mmol/L for most patients
- If stroke plus recent ACS or established coronary artery disease, LDL < 1.8 mmol/L
- No targets for lipid ratio

Antiplatelet therapy

- Still no preference between ASA, clopidogrel and ASA/dipyridamole
- Still no clear guidance on switching to clopidogrel if patient had stroke/TIA while on ASA
 - Only “expert opinion”, based on meta-analysis of heterogeneous studies
- Dual antiplatelet therapy for 21 days doesn't increase risk of hemorrhage

Antiplatelet therapy

- Dual vs monotherapy following TIA is being tested in the POINT trial
 - Data to be presented later this year?
 - Clopidogrel (600 mg load, then 75 mg/day for 89 days) plus ASA vs ASA alone

Cervicocephalic Arterial Dissection

- Either anticoagulation or antiplatelet therapy is acceptable
- Duration of therapy is not clear
- It's worth noting that the risk of stroke is highest within the first two weeks and drops off dramatically after that

When should TIA/minor stroke patients be seen, and what difference does it make?

Effect of urgent treatment of transient ischaemic attack and minor stroke on early recurrent stroke (EXPRESS study): a prospective population-based sequential comparison

Peter M Rothwell, Matthew F Giles, Arvind Chandratheva, Lars Marquardt, Olivia Geraghty, Jessica N E Redgrave, Caroline E Lovelock, Lucy E Binney, Linda M Bull, Fiona C Cuthbertson, Sarah J V Welch, Shelley Bosch, Faye Carasco-Alexander, Louise E Silver, Sergei A Gutnikov, Ziyah Mehta, on behalf of the Early use of Existing Preventive Strategies for Stroke (EXPRESS) study

Lancet Neurol
2009; 8: 235–43

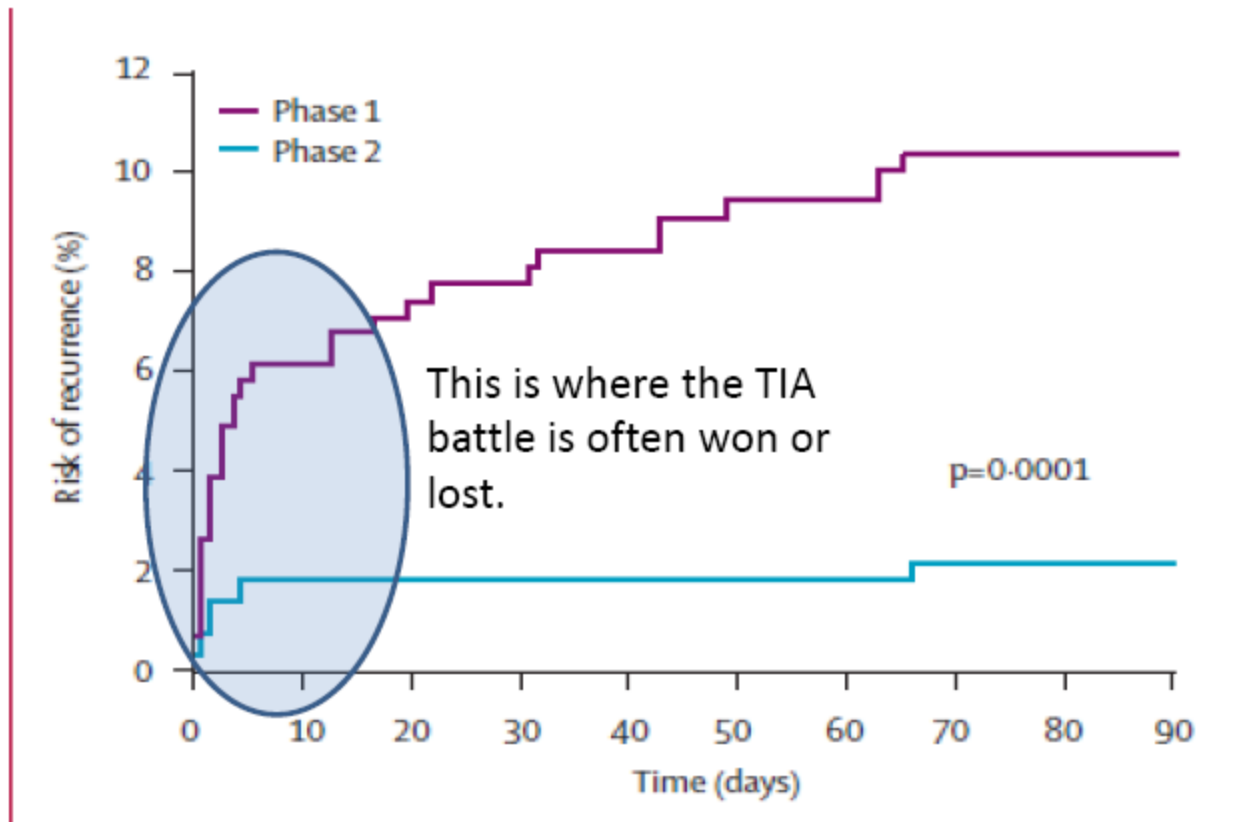


Figure 2: Risk of recurrent stroke after first seeking medical attention in all patients with TIA or stroke who were referred to the study clinic

Highest Risk Symptoms

- **Weakness**
- **Speech disturbance**
 - **Dysarthria**
 - **Aphasia**

Increased Risk Symptoms

- No weakness but patient may have...
- Hemibody sensory loss
- Hemifield vision loss
- Monocular vision loss
- Binocular diplopia
- Ataxia

| Risk For Recurrent Stroke | Time from Stroke Symptom Onset to Healthcare Presentation | Presenting Symptoms | When Patients Should be Seen by Healthcare Professional | Where Patients Should be Seen | Tests to be Done on Initial Assessment |
|---------------------------|---|--|---|---|--|
| Very HIGH RISK | Within 48 hours | <ul style="list-style-type: none"> - Transient, fluctuating or persistent unilateral weakness (face, arm and/or leg) - Transient, fluctuating or persistent speech disturbance /aphasia. - Fluctuating or persistent symptoms without motor weakness or speech disturbance (eg. hemibody sensory symptoms, monocular visual loss, hemifield visual loss, +/- other symptoms suggestive of posterior circulation stroke such as diplopia, dysarthria, and/or ataxia). | Immediately | Emergency Department [ideally ED with brain imaging onsite and access to alteplase (tPA)] | CT/CTA or MRI/MRA (aortic arch to vertex), ECG, Lab Work (Table 3) |

| Risk For Recurrent Stroke | Time from Stroke Symptom Onset to Healthcare Presentation | Presenting Symptoms | When Patients Should be Seen by Healthcare Professional | Where Patients Should be Seen | Tests to be Done on Initial Assessment |
|---------------------------|---|--|---|--|--|
| HIGH RISK | Between 48 hours and 2 weeks | <ul style="list-style-type: none"> - Transient, fluctuating or persistent unilateral weakness (face, arm and/or leg), or speech disturbance/aphasia | As soon as possible, ideally within 24 hours | Stroke Prevention Clinic with Neurologist or Stroke Specialist, Nurse Practitioner | CT/CTA or MRI/MRA (aortic arch to vertex), ECG, Lab Work (Table 3) |

| Risk For Recurrent Stroke | Time from Stroke Symptom Onset to Healthcare Presentation | Presenting Symptoms | When Patients Should be Seen by Healthcare Professional | Where Patients Should be Seen | Tests to be Done on Initial Assessment |
|----------------------------|---|---|---|--|--|
| Moderate (INCREASE D) RISK | Between 48 hours and 2 weeks | <ul style="list-style-type: none"> - Fluctuating or persistent symptoms <i>without motor weakness</i> or speech disturbance (e.g., hemibody sensory symptoms, monocular vision loss, binocular diplopia, hemifield vision loss, or ataxia) | As soon as possible, ideally within 2 weeks | Stroke Prevention Clinic with Neurologist or Stroke Specialist, Nurse Practitioner | CT/CTA or MRI/MRA (aortic arch to vertex), ECG, Lab Work (Table 1) |

| Risk For Recurrent Stroke | Time from Stroke Symptom Onset to Healthcare Presentation | Presenting Symptoms | When Patients Should be Seen by Healthcare Professional | Where Patients Should be Seen | Tests to be Done on Initial Assessment |
|---------------------------|---|---|---|---|---|
| LOWER RISK | More than 2 weeks | <ul style="list-style-type: none"> - Any typical or atypical symptoms of stroke or transient ischemic attack | Ideally within 1 month | Ambulatory Clinic with access to Neurologist or Stroke Specialist, Nurse Practitioner | As appropriate based on assessment by healthcare team |

| Risk For Recurrent Stroke | Time from Stroke Symptom Onset to Healthcare Presentation | Presenting Symptoms | When Patients Should be Seen by Healthcare Professional | Where Patients Should be Seen | Tests to be Done on Initial Assessment |
|---------------------------|---|---------------------|---|-------------------------------|--|
| | | | | | |

What is the effect of seeing patients quickly?

ORIGINAL ARTICLE

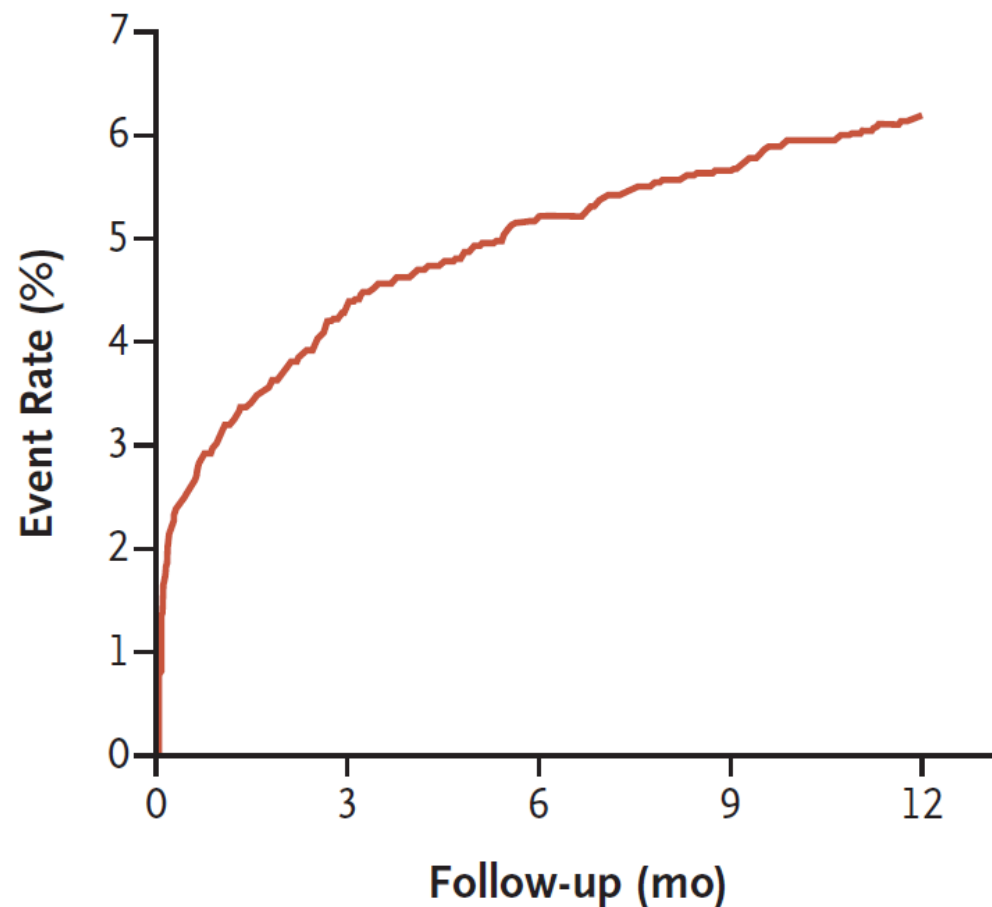
One-Year Risk of Stroke after Transient Ischemic Attack or Minor Stroke

Pierre Amarenco, M.D., Philippa C. Lavallée, M.D., Julien Labreuche, B.S.T., Gregory W. Albers, M.D., Natan M. Bornstein, M.D., Patrícia Canhão, M.D., Louis R. Caplan, M.D., Geoffrey A. Donnan, M.D., José M. Ferro, M.D., Michael G. Hennerici, M.D., Carlos Molina, M.D., Peter M. Rothwell, M.D., Leila Sissani, B.S.T., David Školoudík, M.D., Ph.D., Philippe Gabriel Steg, M.D., Pierre-Jean Touboul, M.D., Shinichiro Uchiyama, M.D., Éric Vicaut, M.D., and Lawrence K.S. Wong, M.D., for the TIAregistry.org Investigators*

N Engl J Med 2016;374:1533-42.

DOI: 10.1056/NEJMoa1412981

Copyright © 2016 Massachusetts Medical Society.



| No. at Risk | 4583 | 4160 | 3961 | 3918 | 3551 |
|-------------|------|------|------|------|------|
| 0 | 4583 | | | | |
| 1 | | 4160 | | | |
| 2 | | | 3961 | | |
| 3 | | | | 3918 | |
| 4 | | | | | 3551 |

Figure 1. Cumulative Incidence of the Composite Outcome in the Overall Population.

The composite outcome included stroke, an acute coronary syndrome, and death from cardiovascular causes.

Stroke prevention is better when patients are seen quickly

- Stroke rate at:
 - 2 days: 1.5%
 - 7 days: 2.1%
 - 30 days: 2.8%
 - 90 days: 3.7%
 - 365 days: 5.1%

Shorter wait time = Fewer strokes

PFO

- Two recent trials have demonstrated that PFO closure reduces the risk of recurrent stroke

ORIGINAL ARTICLE

Patent Foramen Ovale Closure or Antiplatelet Therapy for Cryptogenic Stroke

Lars Søndergaard, M.D., Scott E. Kasner, M.D., John F. Rhodes, M.D.,
Grethe Andersen, M.D., D.M.Sc., Helle K. Iversen, M.D., D.M.Sc.,
Jens E. Nielsen-Kudsk, M.D., D.M.Sc., Magnus Settergren, M.D., Ph.D.,
Christina Sjöstrand, M.D., Ph.D., Risto O. Roine, M.D.,
David Hildick-Smith, M.D., J. David Spence, M.D., and Lars Thomassen, M.D.,
for the Gore REDUCE Clinical Study Investigators*

The NEW ENGLAND JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

SEPTEMBER 14, 2017

VOL. 377 NO. 11

Patent Foramen Ovale Closure or Anticoagulation vs. Antiplatelets after Stroke

J.-L. Mas, G. Derumeaux, B. Guillon, E. Massardier, H. Hosseini, L. Mechtouff, C. Arquizan, Y. Béjot, F. Vuillier, O. Detante, C. Guidoux, S. Canaple, C. Vaduva, N. Dequatre-Ponchelle, I. Sibon, P. Garnier, A. Ferrier, S. Timsit, E. Robinet-Borgomano, D. Sablot, J.-C. Lacour, M. Zuber, P. Favrole, J.-F. Pinel, M. Apoil, P. Reiner, C. Lefebvre, P. Guérin, C. Piot, R. Rossi, J.-L. Dubois-Randé, J.-C. Eicher, N. Meneveau, J.-R. Lussion, B. Bertrand, J.-M. Schleich, F. Godart, J.-B. Thambo, L. Leborgne, P. Michel, L. Pierard, G. Turc, M. Barthelet, A. Charles-Nelson, C. Weimar, T. Moulin, J.-M. Juliard, and G. Chatellier, for the CLOSE Investigators*

PFO should be closed if...

- Patient is 18-60 and no other cause of stroke is found
- Patient has been evaluated by someone with stroke expertise
- Infarction is confirmed on imaging and it's not a lacune

Summary

- A few small changes to BP and lipid management
 - Importance of distinguishing lacunar infarct from other stroke subtypes
 - Lipid management is a little simpler
- Not much change in antiplatelet therapy... yet
- TIA patients should be seen quickly if there is any weakness or speech disturbance
- Some PFOs should be closed