GUIDELINES & PROTOCOLS
ADVISORY COMMITTEE
SUMMARY OF GUIDELINE
Effective Date: April 29, 2009

Stroke and Transient Ischemic Attack – Management and Prevention

For full Guideline please go to website: www.BCGuidelines.ca

Perform investigations and initiate treatment for an emergent TIA within 24 hours; a TIA is a medical emergency.

The average risk of stroke after a TIA is up to 3% in the first 2 days, 5% in the first week and up to 12% at 90 days.[3] Recent studies have shown that a patient's 90 day risk can be lowered from 12% to about 2% with timely (<24hr) investigation and aggressive management.[4]

Suggested TIA Patient Urgency Classification[32]	
Emergent	• Symptoms within the previous 24 hours with two or more high risk clinical features (focal weakness, speech difficulties, symptoms lasted >10 minutes; age >60, diabetic) or • Acute persistent or fluctuating stroke symptoms or • One positive investigation (acute infarct on CT/MRI; carotid artery stenosis) or • Other factors based on presentation and clinical judgment
Urgent	• TIA attack within previous 72 hrs
Semi-urgent	• Does not fit emergent or urgent definition

Based on the above classifications, the following timing of diagnostic tests for TIA is recommended.[9]
Consider strokes and emergent TIA's as medical emergencies and perform investigations and treatment as soon as possible.

Test**	TIA urgency classification			Comments
	Emergent	Urgent	Semi-urgent	
Laboratory work	24hrs	7 days	30 days	CBC, Na^+, K^+, creatinine, INR & aPTT, fasting lipid profile (TC, LDL, HDL, TG), urinalysis, ECG, fasting glucose
CT	24hrs	7 days	30 days	Investigation of choice for acute stroke[2]
MRI	24hrs	7 days	30 days	If recommended by consultant
Carotid imaging	24hrs	7 days	30 days	Optimally within 24 hrs in a carotid territory TIA[9] if the patient is a potential surgical candidate
Holter monitor	24 hrs	7 days	30 days	Consider to detect paroxysmal AF
Echocardiogram	24 hrs	7 days	30 days	If a cardiac source of embolism is suspected, e.g. dysrhythmia, heart failure, LV dysfunction, post MI

***Timing is from time of onset of signs and symptoms of stroke to testing. It is recognized that there may be obstacles to the application of some of the recommendations supported by the literature. These include rapid access to carotid ultrasound, tissue plasminogen activator (tPA) and computed tomography (CT) scanning, as well as availability of defined stroke units and access to rehabilitation services.*

Stroke Management Key Points:

- **Assess all stroke patients for tPA as soon as possible and administer tPA no later than 4.5 hours after clearly defined onset. Benefits of tPA are time critical.**
- **Give antiplatelet or antithrombotic therapy to all ischemic stroke patients unless contraindicated.**
- **Manage stroke patients on an organized stroke unit.**
- **Assess all stroke patients for intensive stroke rehabilitation needs.**
- **Communicate in a timely way to the family physician after an emergency or inpatient discharge for a TIA/Stroke**

For numbered references please see full guideline at www.BCGuidelines.ca

Prevention of TIA/Stroke in Patients with Atrial Fibrillation:

Consider all patients with atrial fibrillation for antithrombotic therapy and use the $CHADS_2$ risk scoring system[6] to assess risk/benefit.

C – Recent cardiac failure	1 point
H – Hypertension	1 point
A – Age 75+	1 point
D – Diabetes	1 point
S – Prior Stroke or TIA	2 points
$CHADS_2$ Score =	

Treatment Recommendations based on $CHADS_2$ Score*	
$CHADS_2$ Score	**Treatment Recommendation**
0	**ASA alone**
1	**ASA or Warfarin (INR 2-3)**
2+	**Warfarin (INR 2-3)**

These scores have been validated to be approximately equivalent to the following stroke risk (see table below). In diabetic patients, the $CHADS_2$ score may underestimate the risk.
A predisposition to falls, even when considering potential head trauma, is rarely a contraindication to the use of anticoagulants in the elderly patients with atrial fibrillation.[5] Even when taking anticoagulants, the risk of subdural hematoma is so low that persons with an average risk of stroke from atrial fibrillation (5% per year in the absence of anticoagulation) must fall approximately 300 times in a year for the risks of anticoagulation to outweigh the benefits on a statistical basis.[5]

Approximate Annual Stroke Risks based on $CHADS_2$ Score			
	With Treatment (%)		
$CHADS_2$ Score	**On ASA**	**On Warfarin§**	**Without Treatment (%)[26]**
0	1.0	1.0	1.9
1	1.5	1.4	2.8
2	2.5	2.0	4.0
3	5.0	3.0	5.9
4+	≥ 7.0	≥ 4.3	≥ 8.5

Treatment Harms: Annual Bleeding Complications (%) ‡			
		On ASA	**On Warfarin**
All $CHADS_2$ Scores	Major bleed (all)	0.25	< 1.5
	Intracranial bleed	< 0.1	0.4

§ Based on an estimate of relative risk reduction (RRR) of 50%.[27] For elderly populations, RRR is estimated at 0.48.[29] Estimates range as high as 0.68 RRR – see also CAFA study.[30]
‡Increased absolute risk of hemorrhage associated with ASA alone compared to placebo ranges from < 0 (a reduction) to 0.5 % annually in 4 studies.[31] Harms of warfarin are also taken from this same reference. Harms of warfarin may be more than this in the very old. A recent study of major hemorrhage among elderly patients found cumulative risk of major hemorrhage of 13.1 per 100 patient years for patients ≥ 80 years of age.[31]
*These treatment recommendations can be made because, statistically, the probability of benefit appears to exceed the probability of harm. Nevertheless, risk of stroke is never eliminated, and some individuals who might not be destined to have a stroke may be harmed by the treatment. Therefore patients' values and acceptance of risk must be discussed. The possibility of higher risk of harm among the elderly should also be taken into consideration.
Please refer to the Warfarin guidelines at www.BCGuidelines.ca

Note: Throughout the table these point estimates are shown without respective confidence intervals and represent a range of results.

For numbered references please see full guideline at www.BCGuidelines.ca