

TIA's: A New Approach



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Stroke is the third most common cause of death worldwide after ischemic heart disease and cancer. Approximately 30% of patients die within the first year of stroke and 50% are left dependent.

The most common cause of stroke is an atheroembolus, which is most commonly caused by carotid disease (Table 1).

Atherosclerosis is the “new cancer of the new millennium” and is the cause of most deaths in Canada and throughout the world. This is a generalized disease process that affects the whole vascular system and needs to be aggressively addressed. Aggressively treating atherosclerosis (addressing risk factors) decrease the number of patients dying from heart disease and stroke. Atherosclerosis is the most common cause of stroke, with carotid disease

Table 1
Causes of stroke

Causes	Percentage
Ischemic	80%
Carotid disease	50%
Intracranial small vessel disease	25%
Cardiac source	20%
Rare causes	
Primary intracerebral hemorrhage	

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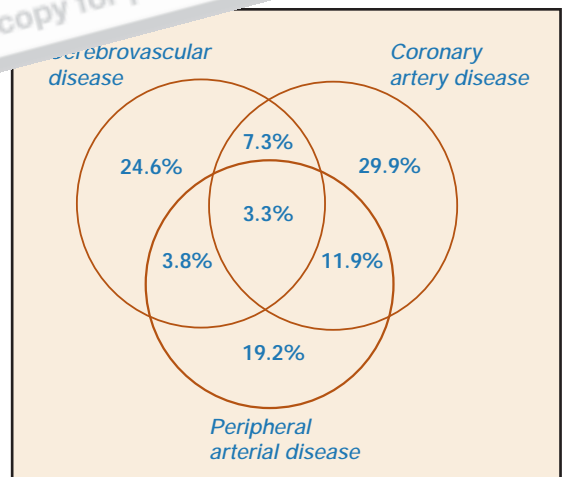


Figure 1. Overlap of atherosclerotic diseases.

What is the natural history of TIA?

Unfortunately, only 15% of strokes are preceded by a TIA. Once a patient has a TIA associated with a carotid stenosis greater than 70%, 18% will have a stroke within one year and a further 8% will stroke in the second year (*i.e.*, 26% within two years). Up to 20% will stroke within 90 days, of which 50% will stroke within 48 hours.²⁻⁴

Carotid bruit: Is it a reliable sign?

No. Of patients who have a carotid bruit, only 35% will have a significant stenosis (> 70%). Furthermore, of patients who have a significant stenosis, only 50% will have a bruit. Unfortunately, to confirm or exclude carotid disease as a cause of a TIA, a carotid triplex scan needs to be performed. A computed tomography scan or a magnetic resonance imaging scan could also be performed.

Is routine brain imaging necessary after a TIA?

In order to meet the new definitions of a TIA, it is necessary. However, the positive yield for detecting other pathology causing a TIA is less than 1%.⁵

What should I do when I see a patient with an acute TIA?

1. Send the patient for imaging to confirm that a significant carotid stenosis is present.
2. If the patient has a carotid stenosis greater than 50%, the patient should be referred to a vascular surgeon to be considered for urgent carotid endarterectomy. If the carotid stenosis is less than 50%, carotid endarterectomy is not indicated.
3. All patients who have carotid disease should be placed on the best medical therapy.

Do patients benefit from carotid endarterectomy?

All patients who have symptomatic carotid disease with a stenosis greater than 70% will benefit from carotid endarterectomy. For

The new cancer of the new millennium...

In pathology it is taught that cancer is an uncontrolled growth of cells leading to a patient's death. Atherosclerosis is an uncontrolled growth of cells within the arterial wall that also leads to a patient's death if the risk factors are not controlled.



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patients with a stenosis greater than 70%, the risk of stroke at two years is 26% on medical therapy as compared to 9% after carotid artery endarterectomy. The number needed to treat (NNT) to prevent one stroke at two years is six patients. For patients with a 50% to 69% stenosis, there is a possible benefit. The risk of stroke at five years is 22.2% on medical therapy versus 15.7% after carotid endarterectomy. The NNT at five years is 15 patients.⁶⁻⁸ The surgeon performing the surgery should have a post-operative stroke/death rate of less than 5%.

Who needs urgent surgery?

Patients who present with a motor deficit or speech deficit should undergo a carotid endarterectomy within 48 hours, if possible. All other patients should undergo surgery as soon as possible. The risk of stroke is about 5% at two days, 10% at seven days and 14% at 30 days. Patients with amaurosis fugax have the most benign course with no strokes at 30 days.^{4,9}

What is the best medical therapy?

All patients with atherosclerotic disease, including patients who have had a TIA, should:

- be on antiplatelet therapy,
- be on a statin,
- be on an angiotensin-converting enzyme inhibitor,
- have good hypertension control and
- stop smoking.

If a patient has a TIA while on acetylsalicylic acid (ASA), they should be considered an ASA failure and placed on clopidogrel.

What about carotid stent angioplasty?

The present results from carotid stent angioplasty are excellent. The first prospective randomized study recently published comparing carotid endarterectomy to carotid stent angioplasty showed that both methods in high-risk patients were equally good at one year.¹⁰

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