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Patient education for stroke prevention after a TIA

ANNA Stroke Seminar 2010
Objectives

• TIA (definition/ features/ risk factors)
• Risk of subsequent stroke/ Screening tools
• Case Study
• Evidence Based Management
• Risk factor Modification
• Our Role as Health Care Professionals
Definition

• A Transient Ischaemic Attack (TIA) of the brain or eye is a clinical syndrome characterized by the acute loss of focal cerebral or monocular function with symptoms lasting less than 24 hours.

• It is thought to be due to inadequate blood supply to the brain or eye as a result of low blood flow, thrombosis, or embolism associated with diseases of the arteries, heart or blood.
Salient features of TIA’s

• Symptoms resolve within 24 hours.
• Brain imaging may not show a relevant focal ischaemic lesion in the brain.
• Symptoms of focal neurological function
• Sudden onset of symptoms
• Symptoms maximal at onset
TIA risk factors

- Previous Stroke/ TIA
- Atrial fibrillation
- Hypertension
- Diabetes
- Smoker
- Cardiac disease
- Peripheral vascular disease
- Elevated blood lipids & cholesterol
- Use of oral contraceptives
- Obesity
- Sedentary lifestyle
- Familial predisposition
Risk of Stroke following TIA

• Risk of subsequent stroke following a TIA has recently been shown to be higher and occur earlier than the previously reported rate (2.5-5% at 2 days; 5-10% at 30 days; 10-20% at 90 days)\(^{(2-8)}\).

• Half of the early risk occurs within the first 2 days therefore diagnostic workup and earlier treatments to prevent further events should be performed earlier.

• Screening tools aim to improve the efficiency of treatment of TIA and thus prevent subsequent stroke.
ABCD – TIA Risk Stratification

- Age, Blood pressure, Clinical features, Duration of symptoms or (ABCD) is a scale for predicting stroke risk following a TIA\(^9\).

- Data from patients with possible TIA and later suspected to have a probable or definite TIA over a 5 year period from 1981 to 1986 that had been referred to a neurologist by their primary care physician were evaluated. It was from this data that the ABCD rule was developed \(^9\).
ABCD continued..

• Validation of the ABCD rule was later performed in a separate group of patients from the Oxford Vascular Study who were referred from 2002 to 2004\(^{(9)}\).

• The seven day overall risk of stroke following TIA was 5.3 percent in those with possible TIA and 10.5 percent in those with probable or definite TIA \(^{(9)}\).
ABCD score chart for stroke risk assessment following TIA

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
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</tr>
</thead>
<tbody>
<tr>
<td>A Age</td>
<td>&lt; 60</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>≥ 60</td>
<td>1</td>
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<tr>
<td>B Blood pressure</td>
<td>Systolic &lt;140mmHg and Diastolic &lt;90mgHg</td>
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<tr>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Unilateral weakness</td>
<td>2</td>
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<tr>
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Assess patient, use tool to score their risk of stroke within the next 7 days
Adapted from Rothwell et al. 2005

Californian Risk Stratification Scale

- A Californian study retrospectively identified all patients diagnosed with TIA in the emergency department in 16 California hospitals \(^7\).

- Hospital and external medical records were reviewed and identified patients who had a stroke within 90 days of the emergency department visit. Consensus decision from two neurologists confirmed stroke.
Californian Risk Stratification Scale

- 1,707 patients with TIA were included in the study.
- 180 patients (10.5 percent) had a stroke within 90 days. Within two days of initial presentation in the emergency department one half of these strokes occurred.
- Age greater than 60 years, diabetes mellitus, hypertension, TIA duration greater than 10 minutes, and TIA with weakness or speech impairment were all independent predictors of stroke.
- However, these results have not been validated in a separate group of patients and do not provide guidance regarding shorter-term risk of stroke\(^7\).
### ABCD² score chart for stroke risk assessment following TIA

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<td><strong>D²</strong> Diabetes</td>
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Assess patient, use tool to score their risk = % risk of stroke within 2 days

- **Low Risk <4pts = 1%**
- **Medium Risk 4-5pts = 4.1%**
- **High Risk > 5 = 8.1%**

Adapted from Johnston et al. 2007

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Short term risk of stroke by ABCD$^2$ Score

Discussion

- These scales reliably predict short term risk of stroke following a TIA.
- The ABCD\(^2\) score specifically is useful in determining further stroke risk and identifying high risk patients.
- The ABCD\(^2\) score is easy to apply and helpful in determining urgency of investigations and treatment following a TIA.
Case Presentation

• Mary is a 67 yo female
• BIBA March 2009
• RMH – City Campus
Medication History

- Panadeine PRN
- Nil other regular medications
- NKDA
Past Medical History

- Hypertension
- Ex-smoker
- Back Pain
- Nil evidence IHD, diabetes, elevated cholesterol or cardiac arrhythmias
Social History

- Lives with husband
- Three adult children
- Previously independent with ambulation and activities of daily living
- Retired still driving
HOPC

- Onset of symptoms at 1315hrs whilst having lunch with husband
- Transient right hemiplegia Arm>Leg
- Transient right CN VII UMN facial weakness
- Aphasia
- Symptoms lasted 60 minutes
- On arrival emergency department completely resolved
Examination

- Glasgow Coma Scale (GCS) 15
- Alert
- Orientated
- Obey Commands
- Pupils equal & reactive to light (PEARL)
Examination Continued

- Power intact bilaterally
- Sensation intact bilaterally
- Reflexes brisk and symmetrical
- Tone – NAD
- Coordination - NAD
Initial Treatment by SNPC

- Get a clear history
- Time of onset and how long did it last
- Symptoms patient experienced
- How many times has event occurred
- Risk factors, medication review.
- Complete ABCD$^2$
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**Score = 6**

Adapted from Johnston et al. 2007
Investigations

- Urgent CT Brain – NAD
- ECG – SR
- Carotid Ultrasound – Left Internal Carotid artery (ICA) 50 -80% Stenosis, Right ICA 15-50% Stenosis
- FBE – NAD  U&E- NAD  COAGS – NAD
- Fasting Lipid profile – Pending
Summary case

• 67 year old previously well and independent lady who presented with a L) MCA territory TIA secondary to L) ICA symptomatic 50-80% Stenosis.
• High risk for further events
• Liaise with vascular team to arrange urgent Carotid Endarterectomy
Immediate treatment for TIA’s

- Provided that CT Brain shows nil evidence of Haemorrhage
- If on no antiplatelet medication commence Aspirin 150 mg daily $^{10}$
- If already on aspirin switch to Dipyridamole /Aspirin 200mg/25mg twice daily $^{11}$ or alternatively Clopidogrel 75mg daily $^{10}$
Immediate treatment for TIA’s continued…

- If in Atrial fibrillation consider Warfarin\textsuperscript{12}
- Commence Atorvastatin 80mg\textsuperscript{13}
- Consider blood pressure reduction with an ACE Inhibitor\textsuperscript{14}
- Consider urgent Carotid endarterectomy (Stenosis≥70\%\textsuperscript{15})
Carotid Ultrasound / Doppler

Necessary if:

• Anterior circulation ischaemic stroke/ TIA or transient monocular blindness
• Virtually complete recovery from stroke or TIA
• Fit for Operation
Carotid Endarterectomy (CEA)

- NASCET showed that CEA reduces the risk by 48% of recurrent disabling stroke or death in patients with a 70-99% ipsilateral carotid artery stenosis\textsuperscript{15,18}
- CEA should be performed as soon as possible (possibly within 2 weeks) after the cerebrovascular event\textsuperscript{19}
Absolute risk reduction from Carotid Endarterectomy

Risk Factor Modification

• Hypertension
• Diabetes
• Cholesterol
• Cigarette Smoking
• Alcohol Consumption
• Obesity
• Physical Activity
• Diet
• Concordance with Medication
Blood Pressure (aim <140/90mmHg or < 130/85 mmHg if <65 yrs or with diabetes)

- Have regular blood pressure checks
- Remember to take your prescribed medications
- Achieve your target weight and waist measurements
- Be physically active
- Stop smoking
- Drink alcohol in moderation
- Reduce your dietary sodium (salt) intake
Blood Glucose Level (aim < 6.1mmol/L)

- Regularly check your blood sugar level if diabetic
- Eat small regular meals
- Include low glycaemic index foods at each meal
- Be physically active
- Achieve your target weight and waist measurement
Fasting blood lipids aim total Chol < 4.0mmol/L, TG <2.0mmol/L, HDL <1.0mmol/L, LDL <2.0mmol/L)

- Remember to take your medication every day
- Have a diet high in plant based foods (vegetables, fruits, legumes) and grain based foods (pasta, rice, wholegrain breads)
- Replace saturated fats with monounsaturated and polyunsaturated fats
- Have fish (fresh or canned) at least twice per week
- Drink alcohol in moderation
- Achieve your target weight and waist measurements
- Be physically active
Smoking (aim no smoking)

- Avoid having a cigarette when you leave hospital (you have passed the hardest stage)
- Set a QUIT date
- Discuss the use of patches or other nicotine replacement therapies with your GP
- Remind yourself that being smoke free will reduce your risk of CVD event by 50% after one year
The 5A approach

• **Ask** about patient’s habits.
• **Advise** of consequence of smoking.
• **Assess** willingness to quit.
• **Assist** with cessation plan development.
• **Arrange** for follow-up
Cessation Methods

- Quit Pack
- Quitline Professional Advice
- Nicotine Replacement Therapy (NRT)
- Zyban (Bupropion)
- Champix (Varenicline)
Immediate benefits of becoming a non-smoker:

- After 12 hours almost half of the nicotine is out of your system.
- After 24 hours the level of carbon monoxide in your blood has dropped dramatically. You now have more oxygen in your blood stream.
- Within days your sense of taste and smell improves.
- Within a month your blood pressure returns to its normal levels and your immune system begins to show signs of recovery.
- Within 2 months your lungs will no longer be producing extra phlegm caused by smoking.
- After 12 months your increased risk of dying from heart disease is half that of a continuing smoker.
Body Weight (aim BMI of <25kg/m². Waist Circumference males <94cm/ females <80cm

- Be physically active (45-60 mins, 5-6 days per week for weight loss)
- Drink alcohol in moderation
- Eat small regular meals and snacks and eat slowly
- Have a diet high in plant based foods (vegetables, fruits, legumes) and grain based foods (pasta, rice, wholegrain breads)
- Reduce your dietary fat and sugar intake
- Limit fats and oils used in cooking by grilling, steaming or stir-frying
- Drink water for thirst
Physical Activity

- Increase your incidental activity (using the stairs, walking to the shops)
- Consider joining a formal activity program (ie gym, walking group)
- Choose active leisure activities (ie bushwalking, gardening, walking on the beach, dancing, playing golf)
- Remember that 10 minute periods of activity are beneficial and additive to achieve your daily target amount of physical activity
Medication Management (aim-understand importance of prescribed medications)

- What medication(s) you are taking
- Why are you taking them
- How and when should you take them (with or without food)
- What are the side effects
- What happens if you suddenly stop taking your medications
Education of patient and family

• Stroke symptoms and signs
• Risk factors and their management—more success with reaching their targets
• Never ignore a TIA, it may turn into a stroke!
• Emergency action plan IV tPA and stroke unit care
References

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