Stroke Endovascular Clot Retrieval in NZ

Working together to improve outcomes

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Overview

• Stroke and reperfusion – what’s all the fuss?
• What’s our strategy?
• Where are we at in NZ?
• How can we collaborate to achieve better patient outcomes?
Stroke: why is it important?

- Stroke 3rd most common cause of death and a leading cause of long-term disability globally.
- Every 2 seconds someone suffers a stroke with close to 20 million strokes and 6.2 million stroke deaths each year.
- In NZ ~8000 stroke per year and rising 40% by 2028.
- With an average of $73K/pt stroke related health service cost will rise to >$800mill/year.

(A Ranta  CAA 8 August 2018)
Reperfusion

• Acute reperfusion therapy most effective in reducing post stroke disability

• Two main types:
  – Intravenous Thrombolysis
  – Endovascular Clot Retrieval

A Ranta  CAA 8 August 2018
Effect of IV tPA on outcome 0-3hr post onset

Why??

- tPA doesn’t always open the artery

Changes in final outcome as a result of treatment:
- Normal or nearly normal
- Better
- No major change
- Worse
- Severely disabled or dead

Early course:
- No early worsening with brain bleeding
- Early worsening with brain bleeding
Endovascular Clot Retrieval
Why is all of this relevant to ambulance services?

TIME IS BRAIN!

Figure 3: Model estimating odds ratio for favorable outcome at 3 months in rt-PA-treated patients compared with controls by OTT
NZ Clot Retrieval Strategy

NZ Population Distribution

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2017/18 Q1 & Q2 combined thrombolysis rate is 10.8%
Number of clot retrieval cases in NZ

- 8 cases in 2011
- 7 cases in 2012
- 5 cases in 2013
- 8 cases in 2014
- 30 cases in 2015
- 49 cases in 2016
- 133 cases in 2017
- 140 cases in 2018

The number of clot retrieval cases increased significantly from 2017 to 2018.
Clot retrieval rates in NZ

ECR Rates by DHB (Q1&2 combined)
2017/18
National Service Improvement Programme

Endovascular clot retrieval

Action Plan
Clot Retrieval Challenges

• Patient getting to hospital in time
• Patient clinical selection
• Imaging access
• Specialist Workforce
• Coordination
• Remote decision making and telestroke
• Transporting patient to clot retrieval centre
• Geographic distances
Pre-Hospital Care
Rapid Patient Identification and Transport

• FAST – Face, Arm, Speech, and Time
• NB: Ataxia, homonymous haemianopia, numbness
• Normal glucose, no LOC, +/- seizure
• Limit on scene time; patients generally very stable
• Take to nearest stroke hospital (NB AKL)
• Pre-notify stroke team/ED (incl FAST, NIHI, onset time)
Transport Mode

• Helicopter should be considered if:
  – patient is independent/without severe comorbidities and
  – diagnosis is clear and
  – patient has severe weakness and
  – patient will clearly reach a designated stroke hospital within four hours of the onset of symptoms and
  – Helicopter transport will clearly save more than 30 minutes compared with road transport.

• Severe comorbidities are chronic diseases that substantially limit a patient’s ability to lead a normal life. Examples include severe CORD, severe heart failure, metastatic cancer with weight loss and living in an aged care residential facility.
In ED

• Wheel to resusc room (or if directed straight to CT – not in place yet everywhere)

• Hand-over to stroke team
  – Time of onset (last seen well)
  – New symptoms
  – Blood pressure, blood sugar
  – Any relevant medications esp blood thinners
  – Whereabouts of next of kin/witness
  – Baseline level of function
Inter-hospital transfer
Ambulance Service

- Well-established internationally
  - Victoria, Berlin, and Virginia
- NZ setting
  - Two providers: St John & Wellington Free
- Issues
  - Inconsistent qualifications
  - Volunteer workforce in some parts
  - IV skills esp Alteplase infusion/BP meds/angioedema
  - Equipment
  - Politics
Ambulance transport in NZ

- Several patients successfully transferred by St John from Taranaki DHB to Auckland DHB
- Wellington with WFA Wairarapa and Hutt patients in-hours ➔ four assessments; no transfers
- Formal protocol in place in Wellington; being finalised in Taranaki
- Working together with flight teams, ambulance services, and stroke teams
Other areas for collaboration

• Data sharing and linkage
  – National thrombolysis and clot retrieval databases
  – REGIONS Care project
• Telestroke in ambulances
• Pre-hospital BP managements
• Mobile stroke units
Mobile Stroke Units
Questions?