Life after Stroke

RCSI Mini Med School Open Lecture Series
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Stroke in Ireland

- 10,817 people in Ireland suffer a stroke/TIA each year, **1 every hour**

- Commonest cause of acquired adult disability and third most common cause of death

- One-quarter to one-third of those are under 65 years ~ 3000 people

- One in five people in Ireland will suffer a stroke at some stage in their life
Living with stroke-related disability

• 59,000 people in Ireland
  – Physical
  – Psychological/Cognitive
  – Emotional
  – Social
  – Vocational
Stroke - ‘Brain Attack’

• A stroke is a brain attack

• A stroke happens when the blood supply to part of the brain is cut off - vascular

• Blood carries essential nutrients and oxygen to the brain. Without a blood supply, brain cells can be damaged or destroyed and won’t be able to do their job.

• Rapidly developing symptoms with signs of focal loss of cerebral function
Types of stroke

- Ischaemic 85%
- Haemorrhagic 15%
Hemorrhagic Stroke

Hemorrhage/blood leaks into brain tissue

Ischemic Stroke

Clot stops blood supply to an area of the brain
Risk Factors for Stroke

- High blood pressure
- Smoking
- High cholesterol
- Carotid artery disease - atheroma
- Excess alcohol intake
- Atrial fibrillation
- Diabetes
- Heart disease
- Obesity
- Sedentary Lifestyle
- Age, gender, family history

- Atheroma
  Fatty deposits in the lining of the blood vessel wall that are acquired during ageing
  Deposition accelerated in
  Hyperlipidaemia
  Diabetes Mellitus
  Hypertension
  Smoking
Stroke

- When a stroke attacks the brain – acting fast is vital, as time is brain.

- The average stroke destroys two million brain cells every minute.

Brain Attack
Mini or mild stroke
Transient Ischaemic Attack (TIA)

- Also known as a mini-stroke, mild stroke*
- Fully resolves within 24 hours (usually minutes)
- Important to get it investigated
- Warning of a bigger stroke to come
- Symptoms: Disturbance of vision, loss of power in limbs, speech disturbance, weakness face
- Referral to TIA clinic for investigations
Video clip FAST Advert

- p://www.stroke.ie/iopen24/home-t-483_484.html
How to Act F.A.S.T.

A simple test can help you recognise if someone has had a stroke:
Facial weakness - can the person smile? Has their mouth or eye drooped?
Arm weakness - can the person raise both arms?
Speech problems - can the person speak clearly, understand what you say?
Time to call 999 for an ambulance if you spot any one of these signs.
Stroke - ‘Brain Attack’ - Act FAST

• A stroke is a medical emergency. If you see the signs of a stroke act FAST and call 999.

• Time is brain

• Early treatment saves lives and increases the chance of making a better recovery
Getting to hospital early is vital

• 1 in every 2-3 people who receive thrombolysis will get some improvement
• 1 in 8 will get a ‘CURE’
• Unfortunately 1 in 35 will do worse
• 1 in 100 will be left permanently disabled or dead
• Thrombolysis is not suitable for everyone
Current medical treatment

Stroke due to a clot
- Consider thrombolysis – in first 4.5 hours
- Aspirin or Clopidogrel (Plavix)
- Warfarin (if atrial fibrillation)
- Alternatives to warfarin available since 2011 (e.g. Dagibatran). No monitoring is required with the new drug.
- Surgery is considered (carotid endarterectomy) if blocked carotids
- Treating all risk factors also help prevent further strokes

• Stroke due to haemorrhage
- Stop any drugs that increase the tendency to bleed – Aspirin, Clopidogrel (Plavix), Warfarin, anti-inflammatories
- Warfarin may have to be reversed
- Treat risk factors especially blood pressure
Effects of stroke

• A stroke causes damage to the brain, which affects how the body works

• The effects will depend on the part of the brain affected

• Every stroke is different, people who have a stroke are affected in different ways
Effects of stroke

- 48% weakness half of body
- 22% unable to walk
- 15 - 27% unable to use arm
- 24 - 53% help with everyday activities
- 12 - 18% communication problems
- 5% swallow problems
- 32% clinically depressed
- 33% cognitive impairment
- Visual problems
- Continence
- Psychological
- Pain
Stroke Units

- Geographically defined area dedicated to stroke patients

- Stroke units reduce death and disability by 25% (Langhorne et al, 1993) and long term dependency

- Reduce length of stay in hospital
Starting rehabilitation after stroke

- Medically stable
- First 24 hours
  - Physiotherapy
  - Swallow assessment
  - MDT assessment

- Rehabilitation facilitates the process of recovery from injury, illness, or disease to as normal a condition as possible

- The goal in rehabilitation is to relearn basic skills that the stroke may have taken away, skills like eating, dressing and walking
Multidisciplinary team

- Medical team - hospital
- Nursing
- Therapy
  - Physiotherapy
  - Occupational therapy
  - Speech and language therapy
  - Clinical psychology
  - Dietician
  - Medical social worker
  - Orthoptist
- GP
- Patient and family
What is physiotherapy?

• **Physiotherapy** helps to regain as much **mobility** and **muscle control** as possible.

• The ultimate goal of physiotherapy is for the patient to achieve the fullest degree of independence and mobility.
Balance after stroke

- Up to 80% balance impairment in acute phase
Walking after stroke

• Walking possible for 52-85% of patients following stroke

However, the gait pattern adopted may not return to normal
Arm weakness after stroke

- Upper limb weakness and shoulder pain is common after stroke

- 1 in 3 patients recover some hand movement at 6 months

- Only about 1 in 10 patients show complete arm recovery at 6 months

- At 4 years after stroke - 1 in 2 patients report an “enormous problem” using their weak upper limb
Spasticity

- Increase in muscle tone
- 28-39% of stroke at 12 months
- Impact on
  - Walking
  - Transfers
  - Posture/seating
  - Balance
  - ADL
  - Arm movement
  - Pain
Speech and language therapy

- Swallow problems
  - Up to 50% affected in 1st two weeks
  - 5% have long term problems
- Communication problems
  - Common after stroke
  - Language, understanding, reading, writing
  - Aphasia - disorder of language processing

SLT assessment and treatment - hospital and community
Living with aphasia

- **Aphasia** - difficulty in ability to speak and understand others, put ideas & intentions into spoken/written language, spell, put words together in sentences, understand what is said, understand written word, understand & use other forms of communication

- Common when the stroke is located on the left side of the brain.
Video clip Aphasia

• http://www.youtube.com/watch?v=5XDRJkTwbO0
Occupational therapy

• Finding **new ways** of carrying out **tasks** that may have become more **difficult** since the stroke
  – e.g. washing, dressing, eating

• **Home visit**
Intensity - more therapy is better

• **More time** dedicated to learning a specific skill is associated with improved performance (Kwakkel 2006)

• **Repetitive practice**
• Galvin et al; 900-1200 minutes additional therapy in first 4-6 week period after stroke confers additional benefits

• Patients should receive a minimum of **45 minutes** of any therapy that is required, daily, seven days
  – *RCPUK Stroke Guidelines 2008, IHF Guidelines 2010*
Recovery after stroke

- **Neuroplasticity** - ability of brain to adapt
- Rapid recovery - first 4 weeks after stroke
- Over **months and even years**, other areas of brain learn to take over from damaged areas
- Recovery - can stop or slow down

‘**Plateau**’ - A level of recovery from which little or no further recovery is expected, traditionally patient discharged from therapy
Preparing for discharge home

- Planning and preparation
- Involve family and MDT
- Referral to community services
- Provide information
- Ongoing liaison with hospital
Family

- Care and support are often primarily provided by informal sources such as family members, particularly those living with the patient, or by stroke support groups.
Stroke services

Admission

Hospital

Acute

Rehabilitation

Home

Discharge

Support

Review
Prevalence of significant problems at one year or more after stroke

Ongoing need for services after stroke

Neuropsychological issues

- Depression
  - Coming to terms with devastating illness - a long process
  - Detection and management

- Attention
  (focussed, sustained & divided attention)

- Learning
  (e.g. carry-over between sessions)

- Memory
  (e.g. autobiographical, episodic, semantic, verbal, visual, short and long term)

- Visuo perceptual / spatial

- Cognitive linguistic deficits
  (e.g. dysphasia)

- Executive functioning
  (e.g. planning, insight, awareness, judgement, abstract reasoning)
Learned non-use after stroke

- Patient learns not to use the hemiplegic limb
- Learned suppression phenomenon (Taub 1993)
- **Forced use** - to facilitate recovery processes
Fatigue after stroke

- Staying positive
- Allow plenty of time for tasks
  - Keep a diary
  - Reminders of progress and set achievable goals
  - Pacing and breaks
  - Set priorities
- Adequate rest and sleep
- Gentle exercise, gradual progression
- Healthy lifestyle
- Support
  - Family
  - Work place assessments

- Common to feel tired
- Energy used in different ways
- Present in the early weeks and months and may persist
- +/- low mood
Visual problems

• Around 60% of stroke survivors have some sort of visual dysfunction following a stroke

• Role of Orthoptist - assessment of visual fields

• Referral and assessment

• Common problems
  – Visual field loss
  – Double vision
  – Hemianopia - loss of sight on one side
  – Visual inattention
Driving after stroke

29% of those who were driving prior to their stroke stopped driving after stroke (INASC 2008)

- Sufficient muscle
- Cognitive ability
- Visual problems
- Fatigue
- Epilepsy

Discuss with consultant / GP
Advice on mechanical adaptations can be obtained from various sources
Inform insurance company before returning to driving
Assessment of fitness to resume driving - two phases; an off-road test on-road
New technologies - emerging research

Robotics

Wii

Treadmill training
Music therapy and stroke

• Incorporating music into standard stroke rehabilitation can help improve recovery of speech and memory.
INASC - acute hospital care and secondary prevention

- Smoking cessation 9% (UK 79%)
- Reduce alcohol 7% (UK 80%)
- Exercise 8% (41%)
- Diet advice 14% (42%)
Ambulatory Activity Profiles in Stroke Patients

Mean Steps/day

- *Stroke Recent discharge (N=11)*
  - 1,480

- Stroke 3 months later
  - 2,200

- **Controls**
  - 4,700

- **PAOD Fontaine II**
  - 8,700

*Shaughnessy, Gardner, Macko*  
**Gardner et al. 1997**
Changes in skeletal muscle after stroke.

Muscle area is 20% lower in hemiparetic thigh (n=30, p<.001).
Relative fat content 25% higher in hemiparetic leg (n=30, p<.001).

(Hafer-Macko et al 2008)
Secondary prevention - keeping active after stroke

- Healthy lifestyle - taking more exercise
- Increase aerobic fitness
- The aim should be to achieve moderate physical activity (sufficient to become slightly breathless) for 20-30 minutes each day
- Exercise programmes should be tailored to the individual following appropriate assessment starting with low intensity physical activity and gradually increasing to moderate levels – RCPUK 2008 B (5.3.1)

National Clinical Guidelines and Recommendations for the Care of People with Stroke and TIA -
http://www.irishheart.ie/media/pub/strokereports/FinalMarch2010.pdf
Absolute time in therapeutic activities between 7.00 am and 5.00 pm

* significant difference after correction for case-mix
Recovery from disability

Weeks 2 - 48 F Ratio 75.6 d.f. = 4 $p \leq 0.0001$  
Weeks 24 - 48 $t = 4.5$ $p < 0.0001$
When should therapy stop?

• Current practice of rehabilitation intervention mainly concentrates on the first six months of stroke.

• At present, there is no agreed consensus about the benefits of such a service more than one year after stroke.

• Regular reviews
Stroke services in Ireland

First Irish National Audit of Stroke Care - INASC 2008
2006 - 1 stroke unit, by mid 2012 - 28 stroke units

- Government’s Cardiovascular Health Policy 2010-2019
- Reorganisation of stroke services underway at present
  HSE National Stroke Programme 2010-2015
Six easy challenges to prevent stroke

1. Know your personal **risk factors**: high blood pressure, diabetes, and high blood cholesterol.
2. Be physically active - **exercise regularly**.
3. Avoid obesity - keep to a **healthy diet**.
4. **Limit alcohol** consumption.
5. **Avoid cigarette** smoke. If you smoke, seek help to stop now.
6. **Recognise the warning signs** of a stroke and how to take action. **ACT FAST**
Summary

• Stroke is a **medical emergency**

• Know the FAST signs of stroke, **act FAST** and get to hospital FAST

• Urgent treatment greatly improves your chances of not just surviving but of recovering from a stroke

**TIME IS BRAIN**
Resources

• www.stroke.ie
  – Irish Heart Foundation’s (IHF) stroke website
  – IHF National Stroke and Heart Helpline Lo-call 1890 432 787
  – Advocacy team
  – Stroke Forum
  – Local stroke support groups, National Network of Support Groups
  – Stroke Lobby Days - meet public representatives
  – Irish National Stroke Week - 16th - 20th April 2012
  – Directory of services - in development….

• www.iscp.ie
  – The Irish Society of Chartered Physiotherapists
  – Tel 01 4022148
  – email - cpng@iscp.ie for information on Chartered Physiotherapists working with stroke patients
Thank you

Time for questions