Stroke Rehabilitation 101; Treating, Caring, Coping

Presented by Dr. Hillel Finestone

May 24th 2016
Bell Pensioners’ Group
Nepean Sportsplex, Ottawa
Hillel Finestone, FRCPC, MDCM, Physiatrist - Specialist in Physical Medicine and Rehabilitation; Director of Stroke Rehabilitation Research, Élisabeth Bruyère Hospital; Professor, Department of Medicine, University of Ottawa.
Objectives

At the end of this presentation you will be able to:

• Explain why stroke rehabilitation is a fundamental component of brain recovery/adaptation

• Better appreciate the links between brain and function

• Understand how stroke rehabilitation fits in with the continuum of stroke care

• Champion for better stroke rehabilitation services!
Stroke Care Continuum

Surveillance
Research & Evaluation
Evidence-Based Guidelines
Communications
Meet Mr. Genug

• Left Brain (Hemispheric) stroke
• Clot in the MCA (Middle Cerebral Artery)
• Weakness and ↓ sensation in right arm and leg
• Difficulty finding his words
• Treated with tPA
What is a stroke?

• Sudden development of a focal neurological deficit as a consequence of a local disturbance in the cerebral circulation

• A lightning “strike” affecting the blood in the brain
Anatomy

• Cerebrum
  – Largest part
  – 2 hemispheres
  – 4 lobes each hemisphere
    • Frontal
    • Parietal
    • Temporal
    • Occipital

• Cerebellum

• Brain Stem

www.tbirecoverycenter.org/treatment.htm
Main Functions of the Brain

- Precentral gyrus—primary motor area
- Central sulcus
- Postcentral gyrus—primary sensory area
- Parietal lobe—sensation
- Wernicke’s area—speech comprehension
- Occipital lobe—visual reception
- Cerebellum—motor coordination, equilibrium, balance
- Frontal lobe—personality, behavior, emotion, intellectual functions
- Broca’s area—motor speech
- Lateral sulcus
- Temporal lobe—hearing, taste, smell

Carolyn Jarvis Physical Examination and Health Assessment 3rd edition.
Copyright © 2000 by W. B. Saunders Company. All rights reserved.

George Mason University
CNHS
Left (dominant) vs Right Hemispheric Stroke

- Aphasia (expressive, receptive or global)
- Right visual field defect
- Left gaze preference
- Slow, cautious behavior
- Right upper motor neuron facial weakness (droop of lower face)
- Right hemiparesis and hemisensory loss

- Left neglect, sensory extinction, inattention
- Denial of deficits, poor insight
- Difficulties with emotional expression and interpretation (impulsive, flat affect, left field defect)
- Right gaze preference
- Left lower facial droop
- Left hemiparesis
- Left hemisensory loss
Does Mr. Genug need inpatient or outpatient Stroke Rehabilitation care?
Mr. Genug’s Rehabilitation...

• Admitted to Élisabeth Bruyère Hospital Stroke Rehabilitation Inpatient Unit
• Medical Issues:
  – DM, HTN, hyperlipidemia, Wt., RSD (Reflex Sympathetic Dystrophy) or CRPS (Complex Regional Pain Syndrome), A. Fibrillation / anticoagulation, shoulder and other pains, spasticity, bladder issues, arthritis, gout...
• Rehab issues:
  – cognitive/perceptual/behavioural/mood, aphasia, diet/dysphagia/malnutrition, fatigue, age, social supports. Driving…
Mr Genug’s Rehabilitation (continued)

• Multi /Trans?-disciplinary care- Nursing, OT, PT, Rec Tx, Pharmacy, Dietician, MD, Social Work, SLP, Neuropsychology, Pastoral Care

• Team meetings, goals, week-end LOA’s, dining room observation, home visits, kitchen assessments, outside sidewalk testing, equipment orders, trips to swimming pool, coffee pot...
Medical Issues

• DM, DM + tube feeding / lipids/ aspirin-clopidogrel- one or the other
• HTN – bp allowed to run high on acute, but on rehab…/Atrial Fibrillation/Angina
• RSD/CRPS – often only dxed on rehab
• Shoulder pain/subluxation – common, “stiff”
• Spasticity – med’ns +/- botox
• Bladder issues – neurogenic, poor inhibition +/- prostatism, “gotta go…”
• Osteoarthritis – eg knee or hip-can affect performance. Gout may happen too…
Assessment of Function 101-I

• Mobility
  – w/c, walker, bed

• Transfers
  – In/out bed, chair…

• Bowels/Bladder

• ADL’s
  – Dressing, eating, hygiene
  – Think: Physical vs. Visuo-spatial vs. Cognitive
Assessment of Function 101-II

- Vision/Hearing
- Mood
- Pain
- Social / Psychological / Vocational / Driving
Stroke Rehabilitation Issues

• Diet/Dysphagia; malnutrition can be a problem.
  – Tx – dysphagia diets, feeding tubes
• Fatigue
  – major follow up issue; napping is ok!
• Age - it does correlate with outcome, but
• Communication/Cognitive/ Neuropsychological - next slide!
Communication/Cognitive/Perceptual Issues

• Aphasia
  – Cortical/Subcortical

• Vascular Cognitive Impairment/dementia…those little white spots on CT and MRI, “small vessel disease”

• Right brain neuropsychological profile:
  – Anosagnosia
  – Neglect
  – Sensory/visual extinction

• Neuropsychology testing may help
Mood Issues

- Depression
  - right or left
- Paranoia
  - right brain
- Anxiety
  - a sequela or a pre-existing problem
POST-STROKE DEPRESSION
Impact of Depression Post Stroke

- Depression has an impact on physical and functional outcomes
- Depressed stroke person is more likely to suffer deterioration in physical and cognitive functioning on discharge from rehab
- Depression has been linked to higher mortality among elderly patients with physical illness
- Depression can be diagnosed and treated
- Canadian Stroke Guidelines on Depression Post Stroke are clear and unambiguous
Depression Post Stroke
Canadian Stroke Guidelines 2010

• SCREEN: All patients with stroke should be screened using a validated tool. e.g., HADS

• ASSESS: At risk patients should be referred to a healthcare professional with expertise for assessment.

• TREAT: Patients diagnosed should be given a trial of an antidepressant medication.
Other Key Stroke Issues

• Socioeconomic

• Family Support

• Caregiver/Spousal Involvement

• Driving – what are the doctor’s responsibilities?

• Let’s first look at the big stroke rehab picture
What kind of Stroke Rehabilitation care works?
Specialized Rehab Care

Specialized Stroke Rehabilitation is the “gold standard” of care
Inpatient and Outpatient Therapy

• Outpatient therapy improves short-term functional outcomes
• Hospital based inpatient stroke rehab is provided to “sicker”, more physically impaired patients, FIM 40-80
• Outpatient therapy is relatively inexpensive (1 PT/1 OT/0.5 SLP/0.5 SW = cost of 1 rehab inpt bed)
• Reduces rehospitalization and allows earlier discharge home
• Estimated savings is $2 for every $1 spent on outpatient therapies
Can my brain heal after stroke?

• The brain has significant capacity to reorganize itself to recover from loss of function following a stroke

• Reorganization depends on training or rehabilitation and will not occur spontaneously
The Earlier the Better
Best Practice Recommendations Inpatient, Outpatient and Community-Based Stroke Rehabilitation (2010)

“FIRST, stroke rehabilitation inpatient care, “FIM 40-80”
SECOND, stroke survivors must have access to specialized outpatient stroke care and rehabilitation services appropriate to their needs.”

“System Implications: There is a marked lack of outpatient and community-based rehabilitation resources and the health system must provide the following:

• Organized and accessible stroke care in communities
• Increased number of experienced clinicians experienced practicing in outpatient and community rehabilitation
• Timely access to services and stroke rehabilitation support for caregivers.”
How do I move on after my stroke?
What kind of Social Supports do I need?

- The stroke experience requires both coping with loss and adaptation to change
- The goal of social support is to help the patient deal with the loss, adjust to new self with limitations and move to acceptance of their new self
- Easy to say, hard to do!
Social Support Post Stroke
Social Support

Social support defined as “the experience or information that one is loved and cared for, valued and esteemed, and able to count on others should the need arise”.

Consists of a number of domains:
• Homefront – composition of persons in the home and $ means
• Social Situation – availability of care and quality of social network
• Residence – adaptability to the needs of the individual

Limited but extensive evidence that social support systems provided through family and social networks associated with better outcomes (discharge home, better physical and functional outcomes)
Interventions

Following stroke, higher levels of support are associated with:
– Improved functional gain (person with stroke)
– Lower levels of depression
– Improved mood
– Greater social involvement/less social isolation
– Better quality of life
Caregiver Burden

- The brunt of long-term care of stroke survivor falls onto family caregivers
- There is no family caregiving “system”
- Usually spouse → daughter → son → other relatives → friends
- Although friends and family provide assistance with care shortly after discharge home, little help is forthcoming at one year
Caregiver Burden

- Family members caring for stroke patients often face their own adjustment difficulties
- Sacrifice their own personal needs
- Often find themselves having to provide skilled nursing care which they must learn by ‘trial and error’
- Caregivers generally cope better with physical limitations than cognitive or emotional changes
Behavioural Problems

• Caregiver comfort is influenced by behavioral problems post-stroke

• Personality changes post-stroke in two-thirds at 3-8 months
  – better in 5%
  – worse in 82%
  – not clear in 13%

• Negative Behavioural Changes
  – Irritability
  – Loss of self control
  – Lower frustration tolerance
  – Emotional lability
  – Self-centeredness
  – Apathy
  – Agitation
Caregiver Depression

- Caregivers of stroke survivors have high rates of depression (39-52%) when compared to normal population (12-16.5%)

- Caregivers at highest risk of depression:
  - spouses of younger, more severely impaired strokes
  - lower household incomes
  - smaller social networks with whom they visit regularly
  - lower levels of optimism and expectations

- Chief causes were loss of companionship, increased domestic responsibility and interference with leisure and social activities
Depression is Important…but

- Caregivers with perceived poorer physical health received significantly more formal services following discharge
- Psychological distress (which is harder to quantify) did not have a similar impact on service provision
- 37% of carers were identified with significant psychological distress at discharge


- Although these types of problems may present the greatest difficulty, healthcare professionals may choose to ignore them

Social Support Interventions Post-Stroke

• 7 RCTs of some mode of formal social support intervention post stroke discharge

• Main interventions were nurse or social worker coming to home and providing ongoing advice, encouragement and problem solving

• Support given by caregiving peers may have a positive effect on the caregiver

• It is important to include both the caregiver and stroke patient in social support interventions
Patient and Family Information

• There is strong evidence of a positive benefit, associated with the provision of information and education through a variety of intervention types.

• Education session may have a greater effect on outcome than the provision of information materials alone.

• There is strong evidence that skills training is associated with a reduction in depression.

• There is moderate evidence that training in basic nursing skills improves outcomes of depression, anxiety, and quality of life for both the caregiver and the stroke patient.
Education

Passive

Active

Improved patient, caregiver outcomes

Provision of standardized, one-size fits all written materials

Interactive, hands-on skills training
Do stroke patients and their families receive adequate information or teaching?

• The receipt of information is important to stroke patients and their families/caregivers, BUT relatively few receive adequate information about topics they perceive to be important.

• Caregivers rarely receive adequate training in skills they require to care for the stroke survivor.

• Healthcare professionals involved in stroke care acknowledge the importance of education for patients and carers; however, is adequate information based upon the information needs of the recipients provided?

• Written materials should be suited to the educational/reading level of the intended recipient.
I CHALLENGE YOU

• I have a dream...

• Help me / HSFC / Champlain Stroke Network/ obtain software and hardware to support patients’ rights to high quality stroke rehabilitation information.
Leisure/Socialization
Leisure / Socialization

• A reduction in social and leisure activities has been reported following stroke

• Neimi et al. (1988) noted that stroke patients in a survey reported an 80% reduction in leisure domains and another study - more TV watching

• Labi et al. (1980) noted women and higher education were most often negatively affected which was attributed to greater value placed on body image and social status in social activities

• Davidson and Young (1985) noted younger patients were more likely to be affected
Leisure / Socialization

• Even after return of physical abilities patients do not return to premorbid social activities
• Often times lack of socialization is avoided because of fear of managing outside of the home
• For instance, toileting in strange and sometimes difficult facilities is often enough to keep the stroke patient isolated at home
• Leads to social isolation, loneliness and depression
Leisure Interventions and Socialization

- 3 RCTs examining the effect of leisure therapy (always occupational therapist) found mixed results with only one RCT able to demonstrate beneficial and lasting effects of leisure therapy.
- All were outpatient interventions; difficulty distinguishing between ADL and leisure activities, and limited number of interventions, often with small numbers.
- Recent meta-analysis pooling data from 3 RCTs found modest improvement in leisure activity with leisure therapy.
- Ottawa needs a Stroke Rehabilitation Institute to enable high quality exercise and leisure interventions!!!
Sexuality Post Stroke
Sexuality, Aging, and Disability

• In a study of individuals 50-92 Gott et al. (2003) reported sex remained an important part of a close emotional relationship

• However, sex may be assigned a lower priority, not due to aging per se, but rather due to increasing disability and health problems that are barriers to sexual activity

• Decreased sexual activity or abstinence is common post-stroke despite normal sexual libido

• 70% of hemiplegic males and 44% of females report a decrease in frequency of sexual activity

• Issue often not well addressed in rehab
Sexuality Post-Stroke

Decreased sexual activity post-stroke attributed to:

- Inability to discuss sexuality with spouse
- Unwillingness to participate in sexual activity
- Reduced body image and self-esteem; Medical concerns: will my BP be affected?
- Positioning problems due to disability
- Most stroke patients agree resumption of sexual activity is important to them
Treatment of Sexual Dysfunction Post-Stroke

- No RCTs on treatment of sexual dysfunction post-stroke
- Open discussion
- Personal care provision by spouse reduces sexual intimacy
- Both patient and partner need to recognize the need to adapt to physical disabilities
- Patients and spouses need to be reassured that sexual activity will not result in another stroke
- Importance of communication and sharing of concerns is key
Recommendations Re Sexuality (Dutch Clinical Guidelines)

• Recommendation #1: Discuss issue with the couple.

• Recommendation #2: When? “at different moments during the rehabilitation process, e.g. – discharge, follow-up. Professional support should be offered when necessary”

• Recommendation #3: Anywhere else? Sexuality and intimacy should be discussed during carer support groups. Information should be given about the nature and causes of these changes.
Driving Post Stroke
Driving Post-Stroke

• The ability to drive is a significant marker of independence and community reintegration (HM Finestone research, Journal PM&R)

• Failure to resume driving negatively impacts social activities and overall wellbeing

• Vision and attention are necessary elements for safe driving and are often impaired post-stroke

• What is ability of off-road tests to predict on-road results? - not great, so it’s very hard for the doctor to say yey or ney in a minisecond!
Driving Concerns

Stroke Deficits Compromising Driving
- Visual field deficit
- Inattention, particularly left neglect
- Cognitive deficits (problem solving)
- Hemiplegia or hemiparesis
- Apraxias

- CMA Determining Fitness to Drive
- Careful history and physical exam
- Driving Eval’n Program with trained OT assessment is optimal
- Should not drive for at least one month - but this a guideline, not a law!
- Road test for all individuals with residual disability is still the best we have
Are stroke survivors good accurate judges of their own ability to drive?

• Stroke survivors often are unaware of mistakes that they make in formal testing scenarios.
• Stroke survivors tend to rate their driving ability as “above average” and better than their spouses.
Conclusions on Driving Post-Stroke

• Patients for whom there is a concern about their ability to drive post-stroke by law need to be reported by MDs and properly assessed, in most provinces and there are other forms to fill out.

• Unfortunately a driving evaluation in a rehabilitation facility is costly.

• Moderate evidence (1 RCT) a driving simulator training program involving driving through complex scenarios similar to real life is associated with improvement in driving fitness and successful on-the-road evaluation - but these are not readily available in Ottawa.

• So I feel your pain but…
Return to Work
Returning to Work Post-Stroke

- Wozniak and Kittner (2002) review noted considerable variation in definition of return to work
- Neurological and functional disability major determinants of work resumption post-stroke
- Successful return to work often required reduction in work hours, change in employment or restructuring of work environment to facilitate RTW
- RTW associated with improved subjective wellbeing and life satisfaction
Vocational Issues:

• Observational studies suggest that many stroke patients could return back to work but most do not (less than half)

• The two major factors influencing RTW are the degree and nature of the stroke related impairment and the level of education/type of work
Toileting Post Stroke

How did we get to this topic?
Assistive Devices for Toileting

Are any devices missing?

Do these devices address all physical toileting issues?
Technology-Assisted Toilets (TAT) - new research by H Finestone

- Toilet seat which can be installed on almost any standard toilet (e.g., TOTO)
- Uses a stream of water to clean the perineal and/or female periurethral region
- Has a fan for drying
- Operated by a hand-held or wall-mounted remote
- Could TATs be used to improve hygiene and independence?
Objectives

At the end of this presentation you will be able to:

• Explain why stroke rehabilitation is a fundamental component of brain recovery/adaptation from vascular related brain injury
• Better appreciate the links between brain and function, depression, driving, caregivers, sexuality, RTW, hygiene…
• Understand how stroke rehabilitation fits in with the continuum of stroke care
• Champion for better stroke rehab services! Build a new educational tool with Dr. F, talk about “different strokes for different folks” and really understand what it means!!!!