Stroke Rehabilitation Nursing Update Providence Care Hospital November 2021







Learning Objectives

- Identify types of stroke & causes
- Recognize and react to signs of stroke
- Describe recent advances in early stroke treatment
- Recall stroke care best practices
- Enhance strategies of preventing, assessing, monitoring and managing stroke complications



www.strokebestpractices.ca

Canadian Stroke Best Practices

Heart&Stroke

Stroke Best Practices

Driving evidence-based stroke care to achieve optimal patient outcomes and quality of care.

Recommendations

Quality

Resources **Events** News

Rehabilitation and Recovery following Stroke

Definition and Considerations

1. Initial Stroke Rehabilitation Assessment

2. Stroke Rehabilitation Unit Care

3. Delivery of Inpatient Stroke Rehabilitation

4. Outpatient and In-Home Stroke Rehabilitation (including Early Supported Discharge)

5.1 Management of the Upper Extremity Following Stroke

5.2. Range of Motion and Spasticity in the Shoulder, Arm and Hand

5.3. Management of Shoulder Pain & Complex Regional Pain Syndrome (CRPS) following Stroke

6.1. Balance and Mobility

6.2. Lower Limb Spasticity following Stroke

6.3. Falls Prevention and Management

7. Assessment and Management of Dysphagia and Malnutrition following Stroke

8. Rehabilitation of Visual and Perceptual Deficits

9. Management of Central Pain

10. Rehabilitation to Improve Language and Communication

Rehabilitation and Recovery following Stroke 6th Edition - 2019 UPDATED

Download Module PDF

International Journal of Stroke

Module Sections and Resources

Definition and Considerations

Definitions)

2. Stroke Rehabilitation Unit Care

21 Stroke Rehabilitation Unit Care > 2.2 Stroke Rehabilitation Team >

4. Outpatient and In-Home Stroke Rehabilitation (including Early Supported Discharge)

4.1 Outpatient & In-Home Rehabilitation > 4.2 Early Supported Discharge (ESD) >

5.2. Range of Motion and Spasticity in the Shoulder, Arm and Hand

Recommendations)

6.1. Balance and Mobility

Recommendations)

6.3. Falls Prevention and Management

Recommendations)

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5.3. Management of Shoulder Pain & Complex Regional Pain Syndrome (CRPS) following Stroke

Recommendations)

6.2. Lower Limb Spasticity following Stroke

Recommendations)

7. Assessment and Management of Dysphagia and Malnutrition following Stroke

7.1 Dysphagia 7.2 Nutrition and Hydration >



Reminder-We all have role to play

- Critical ROLE and RESPONSIBILITY of healthcare providers at every stage of care continuum to enable optimal stroke care & recovery
- Preventing, Recognizing, Monitoring & Managing complications starts early
 - Stroke is an active disease
 - Mild stroke can get worse & severe stroke deficits can improve greatly



Stroke Types and Etiology



Types of Stroke: Ischemic (~ 80%)



brain is blocked or insufficient

Types of Stroke: Hemorrhagic (~20%)



Blood vessel expands and bursts, leaking blood into brain tissue



Transient Ischemic Attack (TIA)

- Caused by a temporarily blocked blood vessel in the brain
- Symptoms are usually 'transient'
- Symptoms same as those of a stroke
- Minor damage could be unnoticeable due to healthy cells left to carry out normal functions
- Serious warning sign of an increased risk of stroke

TIA is a Medical Emergency



Recognizing and Reacting to Signs of Stroke



Stroke Awareness & Recognition

Learn the signs of stroke signs of stroke **F ace** is it drooping? **A rms** can you raise both? **S peech** is it slurred or jumbled? **T ime** to call 9-1-1 right away.

Act **FAST** because the quicker you act, the more of the person you save.



C Heart and Stroke Foundation of Canada, 2018

Closer Look at Stroke Signs



- Unilateral Motor Weakness
- Speech Disturbance: dysarthria, aphasia, apraxia
- Unilateral Sensory Loss
- Unilateral Neglect or Inattention
- Ataxia, Balance, Unsteady Gait
- Vision Loss
- Headache
- Vertigo

Stroke Signs can be Persistent, Fluctuating or Transient



FIRST WHAT

Acute Stroke Protoco

1.8

TIME IS BRAIN

Early Treatments including Recent Advancements



Neurovascular Imaging



van der Worp H and van Gijn J. N Engl J Med 2007;357:572-579

stroke**netwo**

 All patients with suspected acute stroke must undergo immediate non-contrast brain CT and vascular imaging with CTA







ENDOVASCULAR THROMBECTOMY





Symptomatic Carotid & Vertebral Stenosis

- Patients with symptomatic 50 to 99% carotid artery stenosis should be evaluated without delay for potential carotid revascularization
- CEA is generally more appropriate vs stenting for patients
 > 70 years who are fit for sx
- Carotid stenting may be considered for those who are not operative candidates
- CAS is often done in tandem with EVT
- For patients with symptomatic vertebral artery stenosis, medical therapy is recommended



Symptomatic Intracranial Stenosis

 For patients with a recent ischemic stroke due to symptomatic intracranial artery stenosis of 70-99%, medical therapy is recommended over stenting for secondary stroke prevention → DAPT x 3 months, followed by monotherapy + high-dose statin, BP treatment, & structured lifestyle modification



Hemorrhagic Stroke Treatment



<u>ICH</u>

- Surgical intervention so far has not been shown to be superior over medical management
- Decompressive craniectomy might be considered
 - Posterior fossa decompression (URGENT)
 - Hematoma is within 1 cm of cortical surface
 - Patient is young and GCS is 9 or higher
- Some patients require endovascular drain or shunt

<u>SAH</u>

- Craniotomy and Clipping
- Endovascular Coiling



Craniotomy and Clipping

- Cranium is opened and aneurysm is visualized
- Tiny clip is placed across neck of Aneurysm





Coiling

- Endovascular neuro-interventional procedure for intracranial aneurysms (ruptured and non-ruptured cases)
- Procedure in IVR at KGH site
- Elective and Ruptured cases





Stroke Care Best Practices including Preventing & Managing Stroke



Stroke Unit Care







- Stroke Unit care including rehabilitation is proactive approach that saves lives
- Easier to address many issues in geographically consolidated stroke unit
- Interprofessional team, Protocols, Order Sets & Clinical Pathway ensure issues are not overlooked
- What is done to prevent & manage complications can have lasting positive effects over time

Vital Signs & Canadian Neurological Scale (CNS)

<u>CNS</u>

- Measures deficits due to stroke
- Allows earlier detection of deterioration
- Glasgow Coma scale (GCS) used with stuporous or comatose patients
- GCS not sensitive to stroke & does not detect cognitive or aphasia ... Switch to CNS when LOC improves





Hypoperfusion

- Assess hydration status regularly
- Early IV therapy
- Treat hypotension
- If not eligible for tPA-treat only extreme SBP greater than 220 or DBP greater than 120; Ideal BP targets still unknown
- Avoid rapid or excessive lowering of BP
- Maintaining perfusion prevents infarct expansion
- Choice of maintenance BP medications based on <u>Hypertension</u> <u>Canada</u> guidelines- Currently Tx with ACE inhibitor + thiazide/thiazide-like diuretic

Doubles the Odds of Poor Functional Outcome

Hypoxia

- Initial monitoring of SpO₂
- Administer oxygen only if required
- Aspiration is common, often difficult to detect and a major risk for developing pneumonia
- Keep NPO until dysphagia screen is completed
- Mobilize early
- All other times, keep HOB at least 30⁰

Cardiac Arrhythmia

- Cardiac events & arrhythmias are common
- Assess HR, noting any changes in rhythm (irregular)
- Arrhythmias might predate stroke or arise as a complication
- AFib is commonly diagnosed post stroke
- Prolonged QT is associated with decrease HR variability and increase risk of cardiac death

ECG



• ST and T wave changes:

ST segment *elevation*- STEMI

 ST segment *depression/T wave inversion* -Unstable Angina or NSTEMI

ECG findings of infarction:

 anatomical site of the infarct
 Q wave, non Q wave



What is this Arrhythmia?





Rhythm	Rate (per minute)	P Wave	PRI (seconds)	QRS (seconds)
Irregular	A: 350-650 V: slow to rapid	Fibrillatory (fine to coarse)	N/A	<0.12



Anticoagulation for Atrial Fibrillation

- Patients with ischemic stroke/ TIA + afib or flutter should receive oral anticoagulant therapy
- Most patients are prescribed DOAC over warfarin
- Optimal timing to start OAC is not well defined; should be based on individual benefit/risk assessment -clinical circumstances, stroke severity, infarct size, imaging appearances, risk of hemorrhagic transformation
- Provide patients & family education, resources, & ongoing monitoring regarding medication adherence to enhance compliance & address potential barriers in timely way



Blood Glucose Abnormalities

- Check BG immediately
- Correct Hyperglycemia immediately. If random blood glucose level greater than 10 mmol/L:
 - Report abnormal blood glucose levels
 - Repeat BG measurement (Fasting blood glucose & HbAlc)
 - Use of anti-hyperglycemic agents (i.e., insulin sc) should be considered
- Correct Hypoglycemia immediately
- Capillary Blood Glucose checks

Doubles the Odds of Poor Functional Outcome



Fever



- Body temperature is an important predictor of clinical outcome following stroke
- Λ Temp is associated with $\Lambda^{\rm ed}$ morbidity and mortality and worse clinical outcome
- Monitor Temp as part of vital sign assessment; every 4 h for first 48 hrs, and then per routine +/or clinical judgment
- For Temp>37.5^oC, 个 monitoring, initiate temperaturereducing care measures with Acetaminophen and investigate possible source of infection

3x odds of dependency at 3 months



Identification of Dysphagia

<u>Typical</u>

- Coughing/choking
- Drooling/poor lip closure
- Pocketing of food
- Weak cough
- Difficulty swallowing
- Report of "tight throat," "food sticking," or pain associated with swallowing

Sometimes harder to notice

- Repeated swallows
- Wet gurgling voice
- Poor intake/appetite
- Rate of eating (slow to swallow)
- Delayed throat clearing post meals



Gag reflex does NOT equal safe swallowing

Dysphagia Management & Prevention of Pneumonia

- Elevate HOB
- NPO (No PO meds) until dysphagia screen
- Abnormal results?-prompt referral to SLP+/- RD
- Continue to monitor swallowing ability
- Keep upright during & at least 1 hour after meals
- Decision for NG should be made early, collaboratively, & within 3 days
- Early mobilization
- Oral care protocol
- Follow SLP & RD recommendations
- Educate patients, families and caregivers on swallowing & feeding recommendations

Pneumonia quadruples mortality at 3 months





Nutrition & Hydration

- Assess & monitor nutritional and fluid intake
- Use standardized nutrition screen (i.e. CNST)
- Maximize nutrition
- Ensure safe feeding practices; follow SLP/RD recommendations
- Permit & encourage patients to feed themselves whenever possible
- If suspected concerns consult SLP & dietitian ASAP
- Consider tube feeding if unable to meet nutrition & fluid requirements orally
- Educate family on feeding plan & techniques to ↓aspiration risk







- Common complication
 - Confusion
 - Increased agitation
 - Increased incontinence
 - Impulsivity
 - Febrile
- Avoid urinary catheters

Triples the Odds of Dependency at 3 months



CONTINENCE

- Urinary retention or incontinence
 - $\,\circ\,$ Use bladder scanner to assess post-void residual
 - Assess risks for urinary retention (e.g., medications, restricted mobility, UTI)
- Change in bowel pattern (e.g., constipation)
 - \circ Determine bowel pattern
 - \circ Assess for bowel sounds & abdominal distention
 - Laxatives ordered prn
- Evaluate fluid intake & hydration status
- Implement bladder training & bowel management program



Venous Thromboembolism

- Assess patients at risk
- LMWH (Ischemic Stroke)
- Pneumatic compression device (Clots 3 Trial)
- TED stockings not recommended
- Early mobilization & adequate hydration

Doubles the Odds of Mortality at 3 months



Shoulder Pain

- Common
- If arm is weak and hanging down, it can pull shoulder musclescan become partially dislocated
- Prevention is key
 - $\,\circ\,$ Consult and follow PT & OT plan for mobilization techniques
 - $\,\circ\,$ Correct positioning $\,$ and careful handling & good alignment $\,$
 - $\,\circ\,$ Support affected arm at all times. Do not reposition patient in bed or chair by lifting them under the arm. Never pull on affected limb
 - $\,\circ\,$ Use towels or pillows to improve arm positioning in bed

For info about Hemi-Arm Protocol:

http://www.swostroke.ca/hemi-arm-protocol/



Mobilization

- Mobilization prevents most complications
- Initial assessment by rehab therapist ASAP
- Frequent, brief, out-of-bed activity involving active sitting, standing, and walking, beginning within 24 hours of stroke onset is recommended if there are no contraindications-<u>Mobilize EARLY</u>
- Rehab therapy should begin as early as possible once medically able to participate in active rehab
- Follow mobility & positioning recommendations from PT/OT



Sample of Other Complications

- Depression
- Pseudobulbar Affect
- Delirium
- Cognitive & perceptual deficits
- Communication (e.g., Aphasia: expressive/receptive)
- Apraxia (inability to perform purposeful actions)
- Fatigue
- Risk of falls
- Skin pressure injury
- Neglect/inattention





Patient, Family, & Caregiver Support & Education

- Occurs across transition points
- Assess needs, goals & readiness
- Prepare for transitions through information sharing, education, skills training, psychosocial support, & awareness of community services

 $\circ\,$ Consider telemedicine technology to increase access

- Assess understanding & retention of previously taught info (e.g., use of transfer pole)
- Reassess when there is change

CSBPR: Transitions & Community Participation Following Stroke



Stroke Information Package

When the time is right, provide patients and families with the <u>Stroke Information Package</u>. Packages contain these core materials:

- o Patient Journey Map
- o Your Stroke Journey
- SouthEasthealthline.ca Stroke Resources <u>Bookmark</u> or <u>Flyer</u> containing many community stroke resources and services
- o Stroke Survivor Group brochure
- o <u>Community Stroke Exercise Program flyer</u> (if available)
- o <u>Caregiver resource</u>
- o Aphasia Conversation Group (if applicable)

Information can always be added to the package depending on patient and family needs.





Stroke Prevention & Management

What are 2 important factors to stroke care success?





<u>Learn more</u>





Fewer strokes. Better outcomes.

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Best Practice & Education



Education Opportunities



Presentations

In This Section

Education Opportunities Presentations Guidelines & Recommendations Prevention & Vascular Health Hyperacute Acute Rehabilitation Community & Long Term Care Navigation & Transitions Survivor Stories Interprofessional Collaboration Patient Education Links

https://www.strokenetworkseo.ca/



Resources

- <u>http://strokenetworkseo.ca/</u>
- <u>http://www.strokebestpractices.ca/</u>
- Core Stroke Care Competencies:
 - <u>https://www.corhealthontario.ca/resources-for-healthcare-planners-&-providers/core-competencies/disciplines/nursing</u>
- Stroke Unit Orientation Guide:
 - <u>https://www.swostroke.ca/46/Acute_Stroke_Unit_Orientation/</u>
- <u>Taking Action for Optimal Community and Long-Term</u> <u>Stroke Care</u> (Found on Stroke Best Practices website under Resources)





Let's Stay connected

BIC Hospital

stroke**network**



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References

- Boulanger J, Lindsay M, Gubitz G, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018. International Journal of Stroke. 2018;13(9):949-984. doi:<u>10.1177/1747493018786616</u>. Click <u>here</u>
- Teasell R, Salbach NM, Foley N, et al. Canadian Stroke Best Practice Recommendations: Rehabilitation, Recovery, and Community Participation following Stroke. Part One: Rehabilitation and Recovery Following Stroke; 6th Edition Update 2019. International Journal of Stroke. 2020;15(7):763-788. doi:<u>10.1177/1747493019897843</u>. Click <u>Here</u>
- Green TL, McNair ND, Hinkle JL, Middleton S, Miller ET, Perrin S, Power M, Southerland AM, Summers DV; on behalf of the American Heart Association Stroke Nursing Committee of the Council on Cardiovascular and Stroke Nursing and the Stroke Council. Care of the patient with acute ischemic stroke (posthyperacute and prehospital discharge): update to 2009 comprehensive nursing care scientific statement: a scientific statement from the American Heart Association. *Stroke*. 2021;52:e000–e000. doi: 10.1161/ STR.00000000000357. Click <u>here</u>
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