

Practical Considerations: Cognitive Disorders Post-Stroke



Presented by
[Insert name of presenters]

APSS
ALBERTA PROVINCIAL STROKE STRATEGY

Alberta Health Services

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LEARNING OBJECTIVES

On completion of this module, the participant will be able to:

1. List nine types of cognitive impairment post-stroke.
2. State the impact of each cognitive impairment on daily function.
3. Name four tools used to assess cognition.
4. Identify two key differences in the presentation of delirium and cognitive impairment.

OUTLINE

- 1) Cognitive Disorders Post-Stroke
- 2) Delirium
- 3) Case Study

1) Cognitive Disorders Post-Stroke

Brain Anatomy

- ✧ Cognition includes a number of highly complex skills that are managed by many brain systems.
- ✧ However, some areas are key for certain skills.

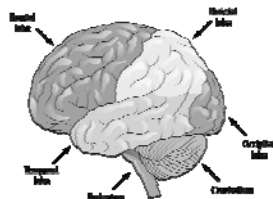


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1) Cognitive Disorders Post-Stroke

Brain Anatomy

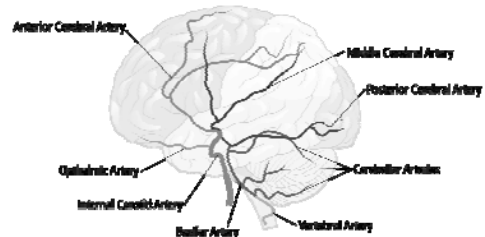
- ✧ Skills such as judgment, personality, problem-solving and attention are coordinated, in part, by the **frontal lobes** (Teasell et al., 2008; Alberta Provincial Stroke Strategy [APSS], 2008).



1) Cognitive Disorders Post-Stroke

Brain Anatomy

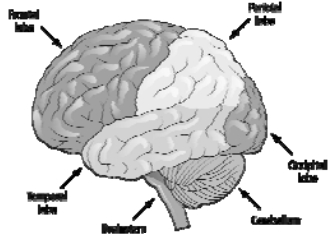
- ✧ The **frontal lobe** is supplied by the middle cerebral artery and the anterior cerebral artery (Teasell et al., 2008; APSS, n.d.).



1) Cognitive Disorders Post-Stroke

Brain Anatomy

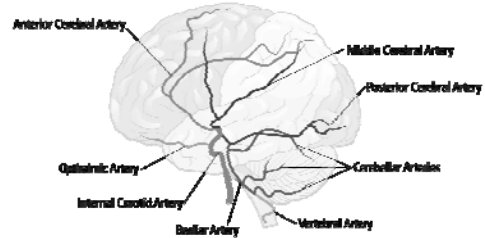
- ✦ The **temporal lobe** plays a key role in long term memory (Teasell et al., 2008; APSS, n.d.).



1) Cognitive Disorders Post-Stroke

Brain Anatomy

- ✦ The **temporal lobes** are supplied by the middle cerebral artery and the posterior cerebral artery (Teasell et al., 2008; APSS, n.d.).



TEST YOUR KNOWLEDGE

What cognitive function does the frontal lobe perform?

- a) Attention
- b) Judgment
- c) Abstract Reasoning
- d) All of the above

TEST YOUR KNOWLEDGE

What cognitive function does the frontal lobe perform?

- a) Attention
- b) Judgment
- c) Abstract Reasoning
- d) **All of the above**

1) Cognitive Disorders Post-Stroke

Presentation

- ✦ Up to two-thirds of stroke survivors have a cognitive deficit after the stroke. Approximately one-third of those develop dementia.
- ✦ About 16 to 20% of stroke survivors with cognitive impairment improve. Most improvement occurs in the first three months, but it may continue for at least a year.

(Salter, Teasell et al., 2008)

1) Cognitive Disorders Post-Stroke

Presentation

A cognitive impairment may impact:

- ✦ Attention
- ✦ Abstract Reasoning
- ✦ Judgment and Insight
- ✦ Personality
- ✦ Memory
- ✦ Sequencing and Initiating Activities
- ✦ Problem Solving
- ✦ Orientation
- ✦ Mental Processing Speed

1) Cognitive Disorders Post-Stroke

Presentation

Attention: The ability to receive information for processing.

Abstract Reasoning: Being able to recognize implied or symbolic meaning.

Judgment: The ability to recognize probable outcomes of actions.

Insight: Being able to assess one's own abilities.

Personality: Characteristics of a person based on how they behave or respond.

1) Cognitive Disorders Post-Stroke

Presentation

Memory is the ability to encode and retrieve information.

semantic memory

episodic memory

procedural memory

immediate memory

recent memory

remote memory

1) Cognitive Disorders Post-Stroke

Presentation

Sequencing and Initiating Activities:

Understanding the component tasks of activities and the order they must be done in to complete the activity successfully.

Problem Solving: Recognizing what options are available, identifying the probable consequences of actions, and weighing which options are most favourable. **Orientation** encompasses awareness of person, place and time.

Mental processing speed: How quickly information is processed.

TEST YOUR KNOWLEDGE



How common is cognitive impairment after stroke?

- a) Up to two-thirds of stroke survivors have a cognitive impairment.
- b) Practically all stroke survivors have a cognitive impairment.
- c) Up to one-third of stroke survivors have a cognitive impairment.

TEST YOUR KNOWLEDGE



How common is cognitive impairment after stroke?

- a) **Up to two-thirds of stroke survivors have a cognitive impairment.**
- b) Practically all stroke survivors have a cognitive impairment.
- c) Up to one-third of stroke survivors have a cognitive impairment.

1) Cognitive Disorders Post-Stroke

Presentation

+ **Mini-Mental State Examination (MMSE)**

+ A brief test with various tasks involving orientation, attention, memory, language and following commands. It is part of the SCORE screening algorithm.

+ **Clock Drawing Test**

+ The test involves putting numbers in a circle to represent a clock and inserting a specific time. It is part of the SCORE screening algorithm.

1) Cognitive Disorders Post-Stroke

Presentation

✦ Montreal Cognitive Assessment (MoCA)

- ✦ A brief test that identifies mild cognitive impairment (Smith, Gildeh & Holmes, 2007).

✦ Cognistat

- ✦ A test of various cognitive domains: orientation, memory, naming, attention, judgment, repetition, following instructions, and similarities.

1) Cognitive Disorders Post-Stroke

Relationship With Depression

- ✦ Depression is associated with an increased risk of mild cognitive impairment. (Barnes et al., 2006).
- ✦ Depression is associated with cognitive impairment in stroke survivors one year after the stroke (Talelli et al., 2004).



1) Cognitive Disorders Post-Stroke

Relationship With Dementia

- ✦ Impaired cognition after stroke is related to the amount of tissue death from white matter hyper-intensities and strokes (Salter, Teasell et al., 2008).



1) Cognitive Disorders Post-Stroke

Relationship With Dementia

- ✦ Stroke survivors are up to 10 times more likely to develop cognitive impairment (Salter, Teasell et al., 2008). As dementia risk is connected to older age, younger stroke survivors are unlikely to develop dementia.
- ✦ The severity of memory impairment after stroke is a predictor of later dementia (Ingles et al., 2002; Stephens et al., 2004).
- ✦ Stroke survivors with dementia are 2 to 6 times more likely to die than survivors without dementia (Salter, Teasell et al., 2008).

TEST YOUR KNOWLEDGE



Which statement is true of depression post-stroke?

- Increased volume of dead brain tissue is related to increased risk of depression.
- About a third of stroke survivors develop depression.
- Depression may cause a cognitive impairment which resolves when the depression is treated.
- All of the above.

TEST YOUR KNOWLEDGE



Which statement is true of depression post-stroke?

- Increased volume of dead brain tissue is related to increased risk of depression.
- About a third of stroke survivors develop depression.
- Depression may cause a cognitive impairment which resolves when the depression is treated.
- d) All of the above.**

1) Cognitive Disorders Post-Stroke Implications

Attention

- ✦ Communicate one idea at a time. Eliminate unnecessary distractions. For example, turn off the television.
- ✦ Confirm that your message was understood.

Abstract Reasoning

- ✦ Provide clear instructions with an associated action.
- ✦ Help the survivor word requests in a socially appropriate way if needed.

(Heart and Stroke Foundation of Ontario, 2002)

1) Cognitive Disorders Post-Stroke Implications

Judgment/ Insight

- ✦ Ensure the survivor's safety.

Personality

- ✦ Reinforce positive behaviours and qualities.

Memory

- ✦ Compensatory strategies have been found to be effective (Cappa et al., 2003).

(Heart and Stroke Foundation of Ontario, 2002)

1) Cognitive Disorders Post-Stroke Implications

Sequencing and Initiating Tasks

- ✦ Provide a cue to initiate an action if necessary.
- ✦ Try to maintain daily routines.

Problem Solving

- ✦ Help the survivor identify the issue, then discuss a few options and the potential outcomes.

(Heart and Stroke Foundation of Ontario, 2002)

1) Cognitive Disorders Post-Stroke Implications

Orientation

- ✦ Maintain a consistent routine.
- ✦ Use external aids.

Mental Processing Speed

- ✦ Slow Processing- Pace the communication to the survivor's ability to process information.
- ✦ Impulsivity- Give cues to slow down when appropriate.

(Heart and Stroke Foundation of Ontario, 2002)

TEST YOUR KNOWLEDGE

Which strategy may help a stroke survivor with poor memory?

- Only provide a small amount of new information at a time.
- Encourage them to keep a journal.
- A string tied around their finger (if it works for them).
- All of the above.

TEST YOUR KNOWLEDGE

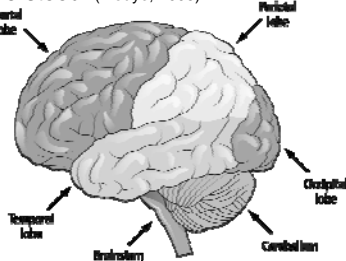
Which strategy may help a stroke survivor with poor memory?

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2) Delirium

Brain Anatomy

- ✦ How delirium disrupts brain function is not well understood. (Inouye, 2006).



2) Delirium

Presentation

- ✦ Delirium is often confused with dementia, but it is distinct in that it is reversible. Also, the cognitive deficits have a sudden onset and fluctuating course (Meagher, 2001).
- ✦ Dementia is the leading risk factor for delirium (Inouye, 2006).

2) Delirium

Presentation

- ✦ Stroke survivors with delirium have longer hospital stays, are less likely to be discharged home, and have poorer functional outcomes (Henon et al., 1999; Sheng et al., 2006).

2) Delirium

Presentation

Link to video with demonstration of the CAM:
www.nursingcenter.com/prodev/ce_article.asp?tid=764085

2) Delirium

Implications



- ✦ Prevention! Recognize and manage risk factors (Weber et al., 2004).
- ✦ There is limited (level 2) evidence that a multi-component approach to manage risk factors reduces the incidence and duration of delirium. However, this has not been studied with the stroke population (Salter, Teasell et al., 2008).



TEST YOUR KNOWLEDGE

What feature differentiates delirium from dementia?

- A vegetative state.
- Acute onset and fluctuating course.
- Impaired attention.
- All of the above.



TEST YOUR KNOWLEDGE

What feature differentiates delirium from dementia?

- a) A vegetative state.
- b) Acute onset and fluctuating course.**
- c) Impaired attention.
- d) All of the above.

3) Case Study

- ✧ **Consider**
 - ✧ **The location of stroke and brain lesions**
 - ✧ **Cognitive disorders**
 - ✧ **Delirium, if applicable**
 - ✧ **Strategies used by the team to identify, manage, and treat**

3) Case Study (sample)

✧ **John Brown**

✧ **Location of stroke and other lesions**

Mr. Brown sustained a ischemic lesion to the left frontal lobe, involving the anterior cerebral artery.

Mr. Brown has right hemiplegia (more weakness of the leg than the arm), urinary incontinence and a gait apraxia.

3) Case Study (sample)

✧ **Cognitive disorders**

SMMSE

Clock Drawing

Cognistat

Clinical Observation

3) Case Study (sample)

✧ **Cognitive disorders (continued)**

✧ **Co-presentation with dementia and/or depression**

Geriatric Depression Scale

3) Case Study (sample)

- ✧ **Delirium, if applicable**
- ✧ **Examine how the interdisciplinary team addresses the relevant issues.** The team's approach includes to:
 - ✧ Encourage independent use of scheduler
 - ✧ Maintain a routine
 - ✧ Reinforce self-monitoring strategies
 - ✧ Explain abstract concepts as needed
 - ✧ Monitor mood and cognition

Practical Considerations: Cognitive Disorders Post-Stroke

Prepared by

Megan Metzler, O. T. (c)
Stroke Rehabilitation Coordinator, Alberta Health Services, South Zone

Reviewers

Stewart Longman, Ph.D., Rehabilitation Psychologist, Alberta Health Services
Gail Eskes, Ph. D., Psychologist, Associate Professor, Department of Psychiatry, Dalhousie University
Margaret Grant, M.Sc.(OT), APSS Rehabilitation Education Coordinator
Pamela Dunn, Communications, Alberta Health Services



References

Refer to the reference list.



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Recommended Reading

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