

Identification & management of Stroke

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Stroke CNS

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OBJECTIVES

- ▶ definition
- ▶ TYPES OF STROKES
- ▶ SIGNS & SYMPTOMS
- ▶ Treatment
- ▶ RISK FACTORS
- ▶ MEDICATIONS
- ▶ Nursing care

Definition of stroke

- ▶ A stroke occurs when a blood vessel, which is carrying oxygen and nutrients to the brain, bursts or is blocked by a clot.
- ▶ This causes an interruption of the blood supply to part of the brain which can damage or destroy brain cells which will affect body functions.
- ▶ A stroke is a medical emergency.
- ▶ Therefore, identifying the signs and symptoms and accessing treatment immediately is crucial.

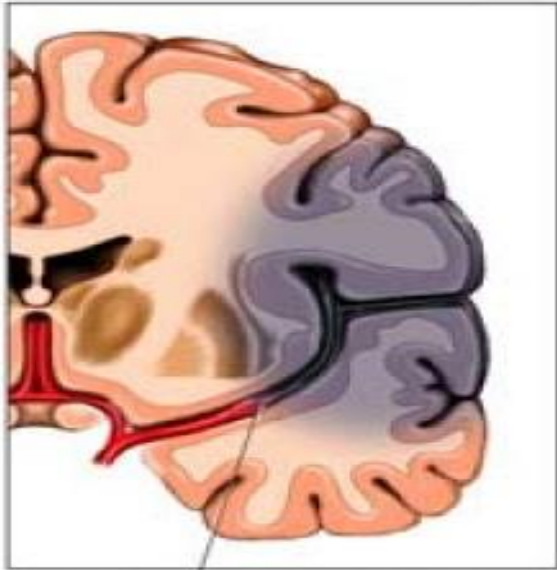
Incidence

- ▶ One in five people will have a stroke at some time of their life.
- ▶ Most are over 65 but stroke can occur at any age.
- ▶ Even young people and children can be affected.
- ▶ Stroke is the third leading cause of death in Ireland and western Europe, and the leading cause of severe, adult-onset physical disability.

stroke

Ischaemic stroke

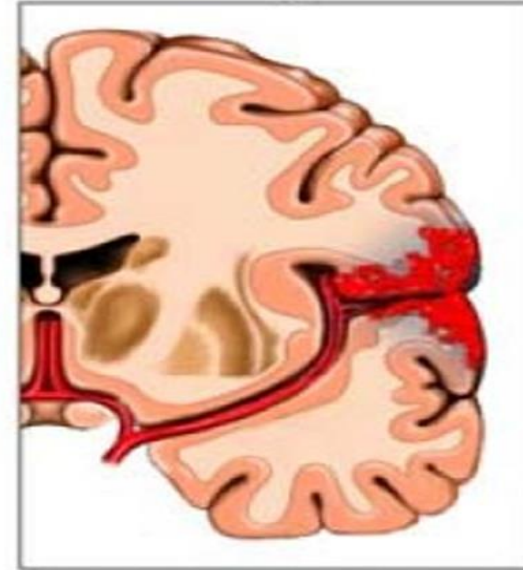
Ischemic Stroke



Clot stops blood supply to an area of the brain

Haemorrhagic stroke

Hemorrhagic Stroke



Hemorrhage/blood leaks into brain tissue

Signs & symptoms

- ▶ Sudden numbness or weakness in the face, arm or leg
- ▶ Sudden confusion, trouble speaking, or understanding speech
- ▶ Sudden trouble walking, dizziness, loss of balance, or loss of coordination
- ▶ Sudden loss of vision
- ▶ Sudden severe headache 10/10 in pain (thunderclap headache)
- ▶ Act **FAST**

FAST



FACE.

Has their face fallen on one side?
Can they smile?



ARMS.

Can they raise both arms and keep them there?



SPEECH.

Is their speech slurred?



TIME.

Time to call **999** if you see any single one of these signs.

BE-FAST

BE-FAST

Balance Eye Face Arm Speech Time

****STROKE****



Balance change <24 H
Eye, Face, Arm, Speech change < 12 H
Doctor review <10m



Anyone with acute neurology at nurse assessment should be reviewed by a doctor urgently.

If symptoms improving but not completely resolved still think stroke.

Frontal lobes:

- Personality
- Social skills
- Judgement
- Emotion regulation
- Movement
- Speech
- Reasoning
- Executive function

Temporal lobes:

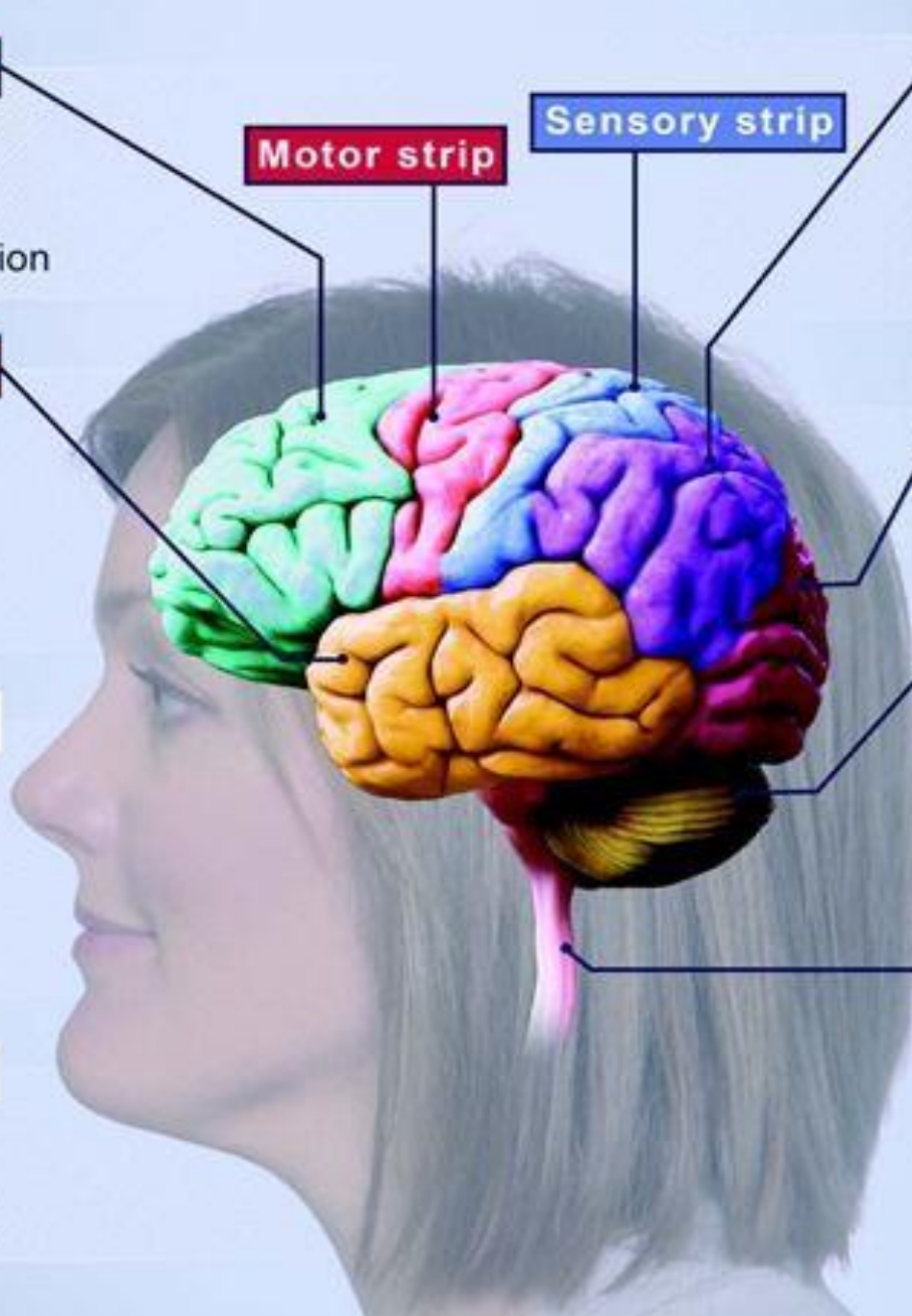
- Memory
- Combine senses with memory
- Object recognition
- Understanding language
- Art/Music
- Speech
- Hearing

Thalamus:

- Spatial attention
- Depth perception
- Relay center for information from the body to brain.
- Consciousness
- Alertness
- Sleep

Basal Ganglia:

- Memory
- Emotion
- Coordination of muscle movement



Parietal lobes:

- Depth perception
- Spatial orientation
- Receives sensory input
- Language processing
- Spatial attention
- Writing/Reading
- Calculation

Occipital lobes:

- Sight
- Processing visual information

Cerebellum:

- Balance
- Learning
- Emotion regulation
- Coordinate movement
- Attention

Brainstem:

- Breathing
- Heart rate
- Blood flow throughout the body
- Motor and sensory pathways cross sides of the body from the brain to spinal cord
- Alertness and sleep patterns

imaging

- ▶ FAST bundle consists of:
 - ▶ Plain CT brain - rules out a bleed
 - ▶ CT angio - looks at the blood vessels
 - ▶ Perfusion CT - blood flow in the brain

treatments

- ▶ Treatment depends on the CT findings
- ▶ Ischaemic stroke treatment is very different to Haemorrhagic stroke
- ▶ Thrombolysis
- ▶ Thrombectomy
- ▶ Neurosurgery (if applicable)
- ▶ Stroke Unit

thrombolysis

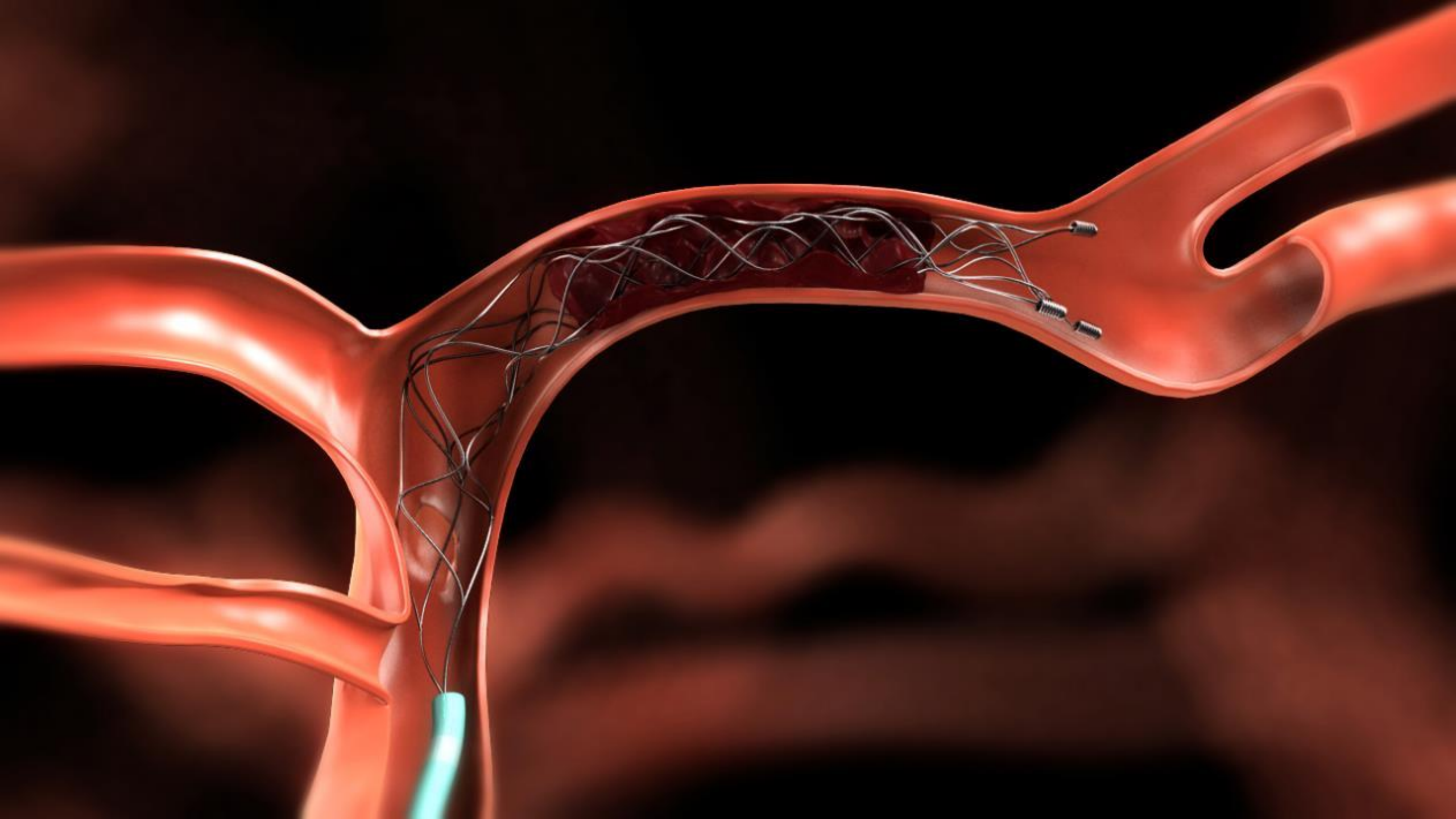
- ▶ An enzyme, it catalyses the conversion of plasminogen to plasmin, the major enzyme responsible for clot breakdown
- ▶ Intravenous fibrinolytic therapy within the first 3 hours post ischaemic stroke onset offers substantial net benefits for virtually all patients
- ▶ thrombolysis within 3 - 4.5 hours offers moderate net benefits
- ▶ Trials ongoing since 1995 in acute ischaemic stroke (also used in other doses for MI, PE)

thrombolysis

- ▶ Consultant decision
- ▶ What is the NIHSS
- ▶ Weigh patient if possible or estimate weight
- ▶ Any contraindications e.g. PR bleeding, previous haemorrhagic stroke, anticoagulants

thrombectomy

- ▶ Unlike thrombolysis, which uses drugs to try and dissolve a blood clot, thrombectomy is a radiologically guided interventional procedure where specialist equipment is used to mechanically remove the clot from the brain.
- ▶ Crucially unlike thrombolysis which is only effective up to four and a half hours post stroke, thrombectomy has been shown to be effective up to 24 hours.



Stroke unit

- ▶ Specialist multidisciplinary care
- ▶ Increased recovery rate
- ▶ Reduced death and dependency
- ▶ Trained staff
- ▶ Early assessment
- ▶ Co-ordinated weekly meetings
- ▶ Early goal setting
- ▶ Early assessment of discharge needs
- ▶ Routine provision of information

Modifiable Risk factors

- ▶ Hypertension
- ▶ smoking
- ▶ Diabetes
- ▶ diet
- ▶ Obesity
- ▶ Hyperlipidaemia
- ▶ Inactivity
- ▶ Carotid artery disease
- ▶ Peripheral artery disease
- ▶ Atrial fibrillation - compliance

Non modifiable risk factors

- ▶ Age
- ▶ Family history
- ▶ Gender
- ▶ Race/ethnicity
- ▶ PREVIOUS STROKE/TIA

Prevention is key

- ▶ Goals of stroke prevention include
 - ▶ Health promotion
 - ▶ Education and management of modifiable risk factors
- ▶ Patients with known risk factors require close management.
 - ▶ Diabetes mellitus
 - ▶ Hypertension
 - ▶ Obesity
 - ▶ High serum lipids
 - ▶ Atrial fibrillation

Clinical manifestations

Communication

- ▶ Patient may experience **aphasia** when a stroke damages the dominant hemisphere of the brain.
- ▶ Aphasia is the total **loss of comprehension and use of language**.
- ▶ **Dysphasia** refers to **difficulty** related to the comprehension or use of language and is due to partial disruption or loss.

Aphasia

impairment of language

- ▶ Affects patients ability to communicate
- ▶ Difficulties can include:
 - ▶ Difficulty understanding others when speaking (understanding words and sentences people are saying)
 - ▶ Difficulty getting words and sentences out (not able to get any words or saying the wrong words)
 - ▶ Difficulty understanding what they are reading
 - ▶ Difficulty writing words and sentences

Speech impairment

- ▶ Speech v language
- ▶ Speech is when the muscles are affected - loss of control of the muscles, muscle weakness
- ▶ Language is the meaning behind words - knowing that a pen is a pen
- ▶ Dysarthria: Main speech impairment. Causes muscle weakness
 - ▶ Can affect volume of voice, articulation (speech can sound slurred), Intelligibility (how well you can understand speech)

Affect (feelings)

- Patients who suffer a stroke may have difficulty controlling their **emotions**.
 - **Depression** and feelings associated with changes in body image and loss of function can make this worse.
 - Patients may also be **frustrated** by mobility and communication problems.
- ▶ **Emotional responses may be exaggerated or unpredictable.**
 - An example of unpredictable affect is as follows:
 - A stoic male has returned home from the hospital following a stroke. During meals with his family, he becomes frustrated and begins to cry because of difficulty getting food into his mouth and chewing, something that he was able to do easily before his stroke.

Intellectual function

- ▶ Both memory and judgment may be impaired as a result of stroke.
- ▶ A left-brain stroke is more likely to result in memory problems related to language.

Spatial-Perceptual Alterations

- ▶ Stroke on the right side of the brain is more likely to cause problems in spatial-perceptual orientation.
 - ▶ However, this may also occur with left-brain stroke.
 - ▶ An example of behavior with right-brain stroke is the patient who tries to rise quickly from a wheelchair without locking the wheels or raising the footrests-impulsiveness.
 - ▶ The patient with a left-brain stroke would move slowly and cautiously from the wheelchair.