Positioning and Early Mobilisation in Acute Stroke

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Objectives

• Discuss the importance of **good positioning** in acute stroke
• Discuss **shoulder care** in acute stroke
• Review **seating** options for stroke patients
• Discuss the importance of **early mobilisation**
• Review **aids and equipment** to facilitate mobility of stroke patients
Positioning

Seating

Mobilisation

Care and support of the affected upper limb
Hemiplegic shoulder pain (HSP)

• Around one quarter of patients develop HSP following stroke, which is associated with poor recovery of arm movement and function.

• Multi-factorial cause
  - subluxation, soft tissue damage, spasticity

• May result from trauma caused by incorrect moving and handling.
Upper limb after stroke
Subluxation

Fig. 12.4a, b. The shoulder girdle droops on the hemiplegic side (right hemiplegia). a Anterior view showing typical subluxation; b posterior view showing position of scapula
Reducing the risk of HSP

- Careful positioning with weight of limb supported
- Careful handling of the affected arm
- Avoid mechanical stress and excessive range of motion

(RCP 2016)
Positioning the upper limb

Always ensure the affected arm is well supported

- Bexhill Arm Rest
Positioning the upper limb

Use pillows to support affected arm whilst seated (chair)
Positioning the upper limb

DO NOT allow the affected arm to hang / be unsupported

X X X
Handling the upper limb - rolling

✅ [Correct method]

❌ [Incorrect method]
Handling the upper limb - transfers
Supporting the upper limb during transfers & mobility

Slings should only be used for transfers and walking

When in bed / chair sling should be removed and arm positioned appropriately
Positioning  Seating  Mobilisation

Care and support of the affected upper limb
Aims of Positioning

Avoid
- Skin damage
- Limb swelling
- Shoulder pain and subluxation
- Contractures
- Aspiration and respiratory complication

Promote:
- Comfort
- Maintenance of soft tissue length
- Function
- Hydration and nutrition

(RCP 2016)
Supine

- **Neutral** head, neck and trunk alignment
- Upper limb **supported**
- **Neutral** hip/knee/ankle position

- Least recommended bed position

**Advantages**  May enhance cerebral perfusion

**Disadvantages**  Risk of aspiration  Difficulty swallowing  Reduced social interaction
Side lying – weaker side

- **Neutral** head, neck, and trunk alignment
- **Upper limb alignment**
  - scapular protraction, shoulder flexion and external rotation
- **Lower limb alignment**

**Advantages**
Able to use unaffected upper limb

**Disadvantages**
Difficult to align affected side
Risk of shoulder injury
Side lying – stronger side

- **Neutral** head, neck, and trunk alignment
- **Upper limb supported**
- Lower limb alignment

**Advantages**
- Able to position affected side
- Encourage use of affected side

**Disadvantages**
- Unable to use unaffected upper limb
Sitting upright

- **Neutral** head, neck and trunk
- **Upper limb supported**
- **Neutral** hip/knee/ankle position

**Advantages**
- Improved lung volumes and oxygenation
- Reduced risk of aspiration
- Optimal position to swallow safely
- Patient able to eat, drink and socially interact more easily

**Disadvantages**
- May reduce cerebral perfusion
- May be tiring to maintain for prolonged periods
Adjuncts to Positioning
Positioning

Seating

Mobilisation

Care and support of the affected upper limb
Seating stroke patients

- Safe seating is considered an **essential** component of early mobilisation and rehabilitation post-stroke.

- Seating should enable a position that is **erect, symmetrical and aligned** to support the natural anatomical structure of the body and prevent the development of complications.

- Different seating options are available dependent upon the patient’s impairments.
Seating options

Standard armchair
- Independent sitting balance or minimal assistance to maintain sitting balance
- Upper limb support may be required
Seating options

Wheelchair
- Provides **more support** than regular armchair
- Can be used with alternative back rests, lumbar rolls, lateral supports, arm rest, cushions
- Enables patient transport
Lateral support and back rest

Bexhill arm rest
Seating options

Specialist wheelchair e.g. tilt in space
- Patients with limited head and trunk control
- Patients with limited physical endurance
Seating considerations

- **Transfer** method into and out of chair

- Physical **ability to maintain** seated position
  - medical stability
  - physical endurance
  - head and trunk control
  - pusher syndrome

- **Cognitive and behavioural state**
  - confusion and disorientation
  - impulsivity
  - fluctuating attention
  - reduced insight

- **Team decision** – Communication is vital!
Positioning | Seating | Mobilisation

Care and support of the affected upper limb
How Does Stroke Affect Mobility?

- Weakness
- Sensory Impairment
- Inattention / Neglect
- Cognition
- Balance
- Spasticity
- Nutrition
- Pain
- Vision

Plus many more……

Guy’s and St Thomas’ NHS Foundation Trust
# Effects of immobilisation

<table>
<thead>
<tr>
<th>Body system</th>
<th>Effect</th>
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| **Musculoskeletal** | muscle weakness and wasting  
                      | reduced bone density                                                  |
| **Respiratory**  | reduced lung volumes  
                      | increased work of breathing  
                      | increased risk of lung collapse and pneumonia                        |
| **Cardiovascular** | orthostatic intolerance  
                      | increased resting HR, decreased maximal cardiac output,  
                      | increased risk of DVT                                                  |
| **Psychological** | reduced mood  
                      | increased risk of depression                                           |
Early mobilisation (24-48hrs)

- Early mobilisation aims to **reduce the risks** of bed rest/inactivity and **minimise post-stroke complications**

- Early start of intensive stroke rehabilitation may be associated with:
  - greater and faster **improvement** of activities after stroke
  - reduced length of hospital stay
Very early mobilisation

- AVERT study
- 2000 patients
- 92% mobilised with 24 hours (23% within 12 hours)
- Average of 6 times per day (therapists and nursing)

- No effect on immobility related complications
- No effect on walking recovery
- Greater disability at 3 month follow up
Benefits of early mobilisation

• Optimal time to commence mobilisation is not clear from the literature

• Very early mobilisation i.e. within 24 hours post stroke is safe and feasible

• However, the addition of very frequent mobilisation within 24 hours may not offer additional benefit and is not recommended

(AVERT, 2015)
Mobilising stroke patients

Mobilising a stroke patient requires individualised assessment of patient’s impairments

- **Cognition**: alertness, confusion, safety awareness, neglect
- **Communication**: do they follow commands? can they express their needs?
- **Vision**: visual field loss e.g. hemianopia; diplopia
- **Head and trunk control**
- **Lower limb function**: extensor muscles to weight-bear, flexor muscles to step
- **Upper limb function**: important for different types of equipment e.g. stick, frame
Risk assessment for mobilising stroke patients

T - Task
I - Individual
L - Load
E - Environment
Transfer and mobility methods

- Hoist
- Pivot transfer
- Rota-stand
- Step transfer
- Walking frame
- Walking stick
- No aids

Dependent

Independent
Ankle-Foot Orthoses (AFO)

- Used for patient’s with a foot drop
- Help to clear the foot from the floor which helps with stepping during mobility/ transfers when worn inside a shoe
- Common pressure areas need to be checked regularly (heel, along edges of AFO) to prevent pressure areas.
Summary:

• Positioning requires a 24 hour approach by all members of the MDT and is individual to each patient

• Specialist equipment is available to facilitate early seating / mobilisation of acute stroke patients

• Mobilisation should begin within 24-48 hours of stroke – initially at a low intensity

• Particular attention needs to be paid to the affected upper limb at all times
References

1) WHO, World Health Assembly, 2005
2) UN Convention for the Rights of People with Disabilities, Article 26, 2008
References

13) Indredavik B, Bakke F, Slordahl SA, Rokseth R, Haheim LL. Treatment in a combined acute and rehabilitation stroke unit: which aspects are most important? Stroke1999; 30(5): 917–923
16) Auriel E and Bornstein NM. Early mobilisation following stroke. European Neurological Review 2013; 8(2): 141-143
References


5) Gustafsson L, McKenna K. A programme of static positional stretches does not reduce hemiplegic shoulder pain or maintain shoulder range: a randomized controlled trial. Clinical Rehabilitation 2006; 20: 277–286


References

References


