A stroke can affect any part of the brain and can cause dysfunctions including a loss of physical abilities and cognitive and perceptual problems. Physical problems increase if there is spasticity (increased muscle tone) or if compensatory patterns of movement occur.

**Physical problems**

Problems can arise owing to reduction of muscle power, limitation of the range of active movement, loss of joint-position sense (the ability to know where a limb is in relation to one's body), sensory impairment, and impaired co-ordination. Many aspects of mobility can be adversely affected, such as:
- Balance
- The ability to transfer
- Standing tolerance
- Bending
- Walking
- Step and stair management.

In particular, ankle instability or a limitation in the range of ankle movements can occur and will increase difficulties managing uneven or ramped walking surfaces. Some people may use walking aids or a wheelchair and require greater room to manoeuvre.

Upper-limb problems can cause difficulties with activities including tasks that require fine finger movements or the use of two hands. This can affect management of tasks such as opening doors, managing light switches and operating call-systems.

**Cognitive and perceptual problems**

Strokes can also cause cognitive and perceptual problems, such as apraxia (difficulty carrying out a previously learned task) or agnosia (difficulty recognizing a familiar object). The Intercollegiate Working Party for Stroke (2000) noted the significance of cognitive-perceptual problems on functional abilities stating that:

> ‘25% of long-term survivors have such severe generalised impairment that they may be diagnosed with dementia.’

There is a multitude of complex perceptual and cognitive dysfunctions, ranging from being unable to work out the correct orientation of an item to coping with the sequence of an action or task. Understanding complex instructions or using unfamiliar items can be difficult.

Golisz and Toglia (1998) identified difficulties with the following aspects of cognition and perception:
- Orientation
- Insight and awareness
- Attention
- Visual processing (visual discrimination and visual motor skills)
- Unilateral inattention (neglect)
- Motor planning
- Memory
- Executive functions such as organization and problem-solving skills.

Cognitive and perceptual problems will make negotiating unfamiliar environments even more problematic. Healthcare staff should be aware of the problems that may arise and try to simplify a task for their patients if problems occur.

**Visual neglect or inattention**

Healthcare staff should be aware of any visual problems, such as hemianopia or inattention. Visual inattention, also termed ‘visio-spatial neglect’, is defined as:

> ‘the inability to perceive a stimulus in a visual field when a similar stimulus is presented and perceived simultaneously in the homologous visual field’

(MediLexicon, 2007)

Inattention is more common in a right-sided parietal or parieto-occipital brain damage (affecting the left side of the body).

Staff may notice that patients are unable to see them if they stand to one side, or the patient may bump into objects or seem to ignore items on one side. All items should be placed within the range of vision, but patients should be encouraged to look towards the neglected side. Items like books, the TV remote-control, glass of water or other necessities can be placed on the neglected side (Davies, 2008). Talk to a patient as you approach them to...
Impairment and disability

There is an important distinction between impairment and disability. The Department of Health (DH) (2003) explains that:

'Disability is shown as being caused by barriers or elements of social organisation that take little or no account of people who have impairments. Society disables people who have impairments because the way it has been set up prevents disabled people taking part in everyday life.'

The report emphasizes the need to pay attention to organizing and structuring society by removing barriers to enable disabled people to participate fully.

Barriers

Barriers are often construed as physical but also include:
- Prejudice
- Stereotypes

<table>
<thead>
<tr>
<th>Problem</th>
<th>Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility</strong></td>
<td></td>
</tr>
<tr>
<td>Difficulty rising from a low chair or chair without arms</td>
<td>Chairs with higher seats with arms</td>
</tr>
<tr>
<td>Poor or limited standing balance</td>
<td>Adequate provision of seating including a fold-down seat inside a lift</td>
</tr>
<tr>
<td>Problems walking over uneven surfaces or loose stone coverings on driveways, car parks and paths</td>
<td>Replace with Tarmac, brick or concrete</td>
</tr>
<tr>
<td>The need to use a walking aid which necessitates the need for a larger turning circle</td>
<td>Adequate space to manoeuvre with walking aids; ensure that toilet and bathroom doors open outwards and there is sufficient turning space</td>
</tr>
<tr>
<td>Poor gait, for example owing to hip-hitching, dragging the affected leg, or ankle instability causing problems walking on thick-pile carpet</td>
<td>Suitable floor that is slip-resistant</td>
</tr>
<tr>
<td>Difficulty managing thresholds</td>
<td>Removal of thresholds</td>
</tr>
<tr>
<td>Difficulty managing steps and stairs</td>
<td>Installation of bilateral handrails; replace with a low-rise ramp (gradient 1:20) with platform at the top Provide a passenger lift with a drop-down seat for ambulant disabled people.</td>
</tr>
<tr>
<td>The need to use a wheelchair</td>
<td>Doors should have built-in visibility panels at the correct height Avoid the need to negotiate narrow doorways and passages Ensure all essential fixtures can be used by both wheelchair and ambulant disabled users.</td>
</tr>
<tr>
<td>Managing a lift</td>
<td>A lift should have a mirror on the far wall to facilitate manoeuvring Control and emergency calls should be within reach Install a lift that allows forward access and egress</td>
</tr>
<tr>
<td>Reduced arm function</td>
<td></td>
</tr>
<tr>
<td>Unable to reach alarm pull-cords</td>
<td>Place to one side within forward (not sideways), reach of toilets (as an affected arm may not be able to pull the cord) Use enlarged end-pulls on cords</td>
</tr>
<tr>
<td>Difficulty reaching light switch</td>
<td>Replace light switch with a sensor-operated light or with a rocker plate that is accessible for a wheelchair user or ambulant person.</td>
</tr>
<tr>
<td>Unable to reach pull-cord above bed</td>
<td>Re-site within reach or use an extension lead (Figure 1)</td>
</tr>
</tbody>
</table>
If a gradient is present, this should be minimal (less than 1:20). Revolving doors are no longer recommended in public buildings. The opening force at the lead edge of a door should be no greater than 20N (Newton).

**Areas covered in Part M**
This Act covers all types of access for all people including:
- Wheelchair users
- Those who are ambulant disabled
- People with learning difficulties
- Anyone with a hearing or visual impairment
- Anyone who lacks tactile sensitivity
- People of either sex with babies and small children.
Perhaps the term ‘accessible’ instead of ‘disabled’ facilities should be used, as this starts from the assumption that you want everybody to use the facilities. If creativity is applied,
Clinical

Figure 3: Toilet that complies to Part M of building regulations

Accessibility issues can be solved with relatively little cost. The three main areas that patients have problems with are way-finding, and accessing buildings and accessing toilets.

Entrances and doors
Assisted door opening or automatic doors are becoming increasingly used (Figure 2) to help with door opening. Level access is easier to negotiate than stairs, steps or a ramp.

Way-finding
Within a hospital or clinic, signage should be easy to read and understand to assist with way-finding. Colour contrast is often used to help way-finding or to aid identification of corridors and doors. It is easier to see a differently-coloured door than to look for a small identification plate.

Toilets and washrooms
All public toilets should have at least one ‘ambulant’ cubicle with a door that opens outwards. Space inside cubicles can be confining necessitating moving to the side of the toilet to shut or open the door. There should be two horizontal grab rails (to assist to stand and sit) and at least one vertical rail (to steady when standing) (Figure 3). The suggested height of a toilet is 480mm from the floor. Taps ideally should be single-lever and placed in mid-line or be sensor operated. Often soap dispensers, toilet-paper dispensers, hand-drying machines or paper-towel dispensers are out of reach.

If a pull-cord alarm is installed, the bangle should be within reach and extend to 100mm above the ground so that if a person falls on the floor the cord is within reach.

Disabled toilets that are specially designed for wheelchair users often do not have any mirrors, implying that ‘disabled’ people are not concerned about their appearance.

Conclusion

The environment can hinder or help activities such as personal care. All staff should be aware of the problems that the patient has; particularly any impairment of their physical, cognitive and perceptual abilities. Healthcare staff can help to ensure that patients are assisted to manage their environment and ensure that problems coping with the environment have not been overlooked. This can be achieved simply by placing items within reach and by bringing problem areas to their line-managers.

When alterations are being carried out, it is sensible to make sure that the position of items like lighting, switches or door handles are accessible for most people. With a little forethought, life can be made easier for people and enable them to maintain and improve their level of independence.

Key Points

- Cognitive and perceptual problems add to difficulties managing mobility and self-care.
- Barriers hinder a person’s rehabilitation and re-integration.
- The environment should be inclusively designed to be a Lifetime Neighbourhood.
- Removing physical barriers will help people with children as well as those who have access issues.
- Good planning will avoid the need for later expensive adaptations.

Further information

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