Amount and intensity of rehabilitation

Introduction

It has been reported that people with stroke receive little rehabilitation in the acute phase despite being able to tolerate more activity. It has also been postulated that more organised stroke care improves outcomes can be, in part, attributed to increased amount and intensity of rehabilitation in these units.

Positive cortical reorganisation after stroke is driven by activity and repetitive practice of new skills (Nelles et al 2001). However, the sequelae of stroke often lead to stroke survivors spending very little time engaged in activity and task practice, particularly during periods of hospitalisation (Esmonde et al 1997, Mackey et al 1996). There is increasing evidence that a greater amount of therapy after stroke results in greater recovery of function, particularly if it is task-specific and functional in nature (Bode et al 2004, Kwakkel et al 2004).

Research

Walking and Activities of Daily Living

A systematic review found that increased practice (of at least an additional 16 hours over the rehabilitation period) was beneficial for ADL, extended ADL and gait speed (Kwakkel et al. 2004). Circuit class therapy using task-oriented training has been shown to be an effective way to increase amount and intensity of rehabilitation with positive benefits for mobility (systematic review: Wevers et al. 2009). Video self-modelling may also increase intensity of practice and has benefits for standing performance (McLennan and Ada, 2004).

Upper limb activity

It is postulated that emerging approaches for upper limb activity may increase the amount of practice and that this is the mechanism for action (see CIMT, mechanical and robot-assisted best practice sheets). The systematic review by Kwakkel et al (2004) failed to find evidence for the benefits in these approaches. However a more recent analysis (French et al. 2008) reported that modest gains can be made with over 20 hours of repetitive training (CIMT or task specific) though not with less than 20 hours.

Communication

A systematic review of intensity of aphasia therapy found more intense therapy was beneficial (Boghal et al. 2003). Further examination revealed that the intensity required for this benefit was an average of 8.8 hours of therapy per week for 11.2 weeks (minimum of 3 hours per week). More recently an RCT found that people with aphasia may not tolerate intense input (Bakheit et al. 2007) however another RCT found very early aphasia therapy performed daily for at least 45 min per day was beneficial for communication recovery and well-tolerated, compared to one time per week (Godecke, 2009).

Funded by the former Rural Stroke Outreach Service, Royal Brisbane and Women’s Hospital, Queensland Health. The input of the Centre for Allied Health Evidence, University of South Australia, is gratefully acknowledged.
Dysphagia

An RCT by Carnaby et al. (2006) found a higher intensity of intervention for dysphagia lowered the risk of complications (chest infections) in acute stroke.

NSF Guidelines

6.1.1 Amount and intensity of rehabilitation

a) Rehabilitation should be structured to provide as much practice as possible within the first six months after stroke. (Grade A: Kwakkel et al. 2004)

b) For patients undergoing active rehabilitation, as much physical therapy (physiotherapy and occupational therapy) should be provided as possible with a minimum of one hour active practice per day at least five days a week. (Good practice point)

c) Task-specific circuit class training or video self-modelling should be used to increase the amount of practice in rehabilitation. (Grade B: Wevers et al. 2009; McLennan and Ada, 2004)

d) For patients undergoing active rehabilitation, as much therapy for dysphagia or communication difficulties should be provided as they can tolerate. (Grade C: Boghal et al. 2003; Bakheit et al. 2007; Godecke 2009; Carnaby et al. 2006)

e) Patients should be encouraged by staff members, with the help of their family and/or friends if appropriate, to continue to practice skills they learn in therapy sessions throughout the remainder of the day. (Good practice point)

Practice Suggestions

See best practice sheets for walking, ADL, aphasia and dysphagia for specific practice suggestions.

All staff should be committed to increasing the opportunities for practice whenever possible during the course of an inpatient stay. Minimum hours spent in practicing should be established for each domain and monitored as a quality improvement process.

Setting up a balance and mobility group in which stroke survivors spend time practising functional mobility tasks is a resource efficient means of providing increased therapy. Using therapy assistants to supervise classes with input from therapists to progress exercises is another way of maximising resource utilisation. Relatives and friends can also be involved. Such a group can also incorporate positioning and ES programs for those stroke survivors with severe limb weakness or spasticity. Group sessions can be run either as an alternative to individual sessions or in addition to them. The important thing is that practice time is maximised and that the task that each stroke survivor is practising is tailored to provide sufficient challenge.
Similarly practice time for communication and can be instituted with the therapist facilitating small group sessions and/or working with support staff, family and friends to reinforce therapy practice and goals.

Tools to increase the amount of practice (of mobility, upper limb activity and communication) that occurs outside of therapy times or following discharge could include a ‘practice kit’ that has items useful for them to practice with, or a video of them performing activities with therapist-specific feedback. However, such tools are only likely to be effective if the stroke survivor is self-motivated, or has a supportive family member or friend.

Considerations

Research has suggested that stroke survivors may have difficulty practising independently without a therapist present (Ada et al. 1999). For this reason, compliance with ‘homework’ tasks set outside of therapy times may be low, and providing semi-supervised group therapy sessions may therefore be more effective.

Increasing intensity and amount of practice needs to be monitored for potential signs of fatigue and other adverse signs. Tolerance to rehabilitation intensity is highly individual.
References and readings


Godecke E. Efficacy of aphasia therapy in the acute setting. Perth: Curtin University of Technology; 2009.


