

EARLY MOBILIZATION FOLLOWING STROKE

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Stroke is a sudden loss of cerebral blood flow caused either by occlusion (85% of cases) or rupture of cerebral artery manifesting with focal neurological deficits. One third of stroke patients are younger and two thirds older than 65 years of age. Stroke can have both immediate and ongoing physical effects. Disability and mortality represent the most relevant clinical outcomes. Degree of disability varies from devastating outcome with total dependence to minimal and manageable disability. Within 12 months of stroke, one third of stroke patients will die and another third are left with restriction in performing simple activities of daily living (ADLs). Considering the high prevalence of the disease, the burden of poststroke disability is of primary public health importance, translating to a substantial cost worldwide. In USA in 2008, for example, the direct and indirect costs of stroke are estimated to be more than 65 billion\$. Much of this cost probably relates to the physical disability. Any treatment that improves functional outcome can significantly reduce disability and costs, setting regaining of functional independence, defined as improvement in mobility and activities of ADL, as an important goal. The potential for recovery varies substantially across stroke patients; factors associated with poor functional recovery include stroke severity, age and to a lesser extent, diabetes. Rehabilitation is nowadays recognized as a corner stone of multidisciplinary stroke care and can reduce the number of patients who are left handicapped. Forty percent of stroke patients need active rehabilitation services. In recent years rehabilitation has been shown to influence, both, brain recovery and reorganization especially in relation to motor impairment. Comprehensive rehabilitation programs appear to improve functional recovery over standard care with respect to speed and extent of recovery. It is noteworthy that neurological recovery is not linear and most of it occurs within the first 3 months although some patients show recovery over prolonged timelines.

Rehabilitation intensity depends on the status of the patient and degree of disability. If the patient is unconscious, the rehabilitation is passive to prevent contractions, pressure ulcers and to prevent distress when movement is regained. However, there is still debate regard the optimal intensity of physical therapy following stroke with conflicting results across the different studies. This discrepancy may reflect differences in methodology, patient selection and outcome scales.

The rationale behind Very early mobilization

Very early mobilization (VEM) is a distinctive characteristic of care that involves starting mobilization including sitting up, getting out of bed, standing, and walking, early after stroke and continuing at frequent intervals. The exact meaning of VEM however is not well established and varies between 1 days -3 months following symptoms onset.

Previous studies have shown that induction of proteins such as neurotrophic factors is associated with neural repair within the first 2 weeks after stroke and thus, modulate greater plasticity that may restore function in the peri-infarct tissue and supplementary motor areas. This experience dependent cortical plasticity has been well documented in normal and injured brains. It may also enable the brain to better respond to rehabilitation, suggesting that efficacy of therapy may vary considerably with timeline of initiation. The interaction between plasticity and recovery is, however, complicated and individualistic, therefore it is of importance to apply the appropriate rehabilitation strategy at the appropriate time. Efforts are being made to develop more efficient rehabilitate strategies that utilize current knowledge of cortical plasticity. In addition to enhance plasticity, VEM may prevent complications carrying high risk of causing harm such as deep vein thrombosis, pulmonary embolism, contractures, infections, sores, muscle atrophy, deterioration in cardiorespiratory function. These immobility associated complications were shown to be responsible to 51% of deaths in patients with cerebral infarction. In a further analysis of the stroke unit systemic review stroke unit care appeared to reduce complications of immobility, infections, in particular. Early mobilization may also have important psychological effects on patient's motivation, well-being and quality of life.