

# Motor Recovery Mechanism in Stroke Patients



장 성 호

영남대학교 의과대학 재활의학교실

Stroke is a leading cause of major adult disability. Motor weakness is one of the most serious disabling sequelae of stroke, with over 50% of stroke patients experiencing with a residual motor deficit. Elucidation of the motor recovery mechanisms in stroke patients is important because such information could provide the scientific basis for stroke rehabilitation. The motor recovery mechanism after stroke, however, has not yet been clearly elucidated, but several suggested mechanisms have been proposed. These include the ipsi-lateral motor pathway from the unaffected motor cortex to the affected hand, peri-lesional reorganization, the recovery of an injured lateral corticospinal tract, contribution of the secondary motor areas, motor pathway through transcallosal or transpontine fibers, and aberrant motor pathway. These mechanisms can be grossly re-classified into two categories: motor recovery by a corticospinal tract and motor recovery by non-corticospinal tracts. However, most of these studies have focused on patients with cerebral infarct, on the recovery mechanism of hand motor function, and on the recovery mechanism at the cortex level. By contrast, relatively, little is known about the motor recovery mechanism for patients with intracerebral hemorrhage, for locomotor recovery, for the subcortical level, and for non-corticospinal tracts such as the corticoreticulospinal tract and the rubrospinal tract. Therefore, further research should be focused on the elucidation of motor recovery mechanisms in relation to the above topics.

**Key Words:** Stroke, Motor recovery, Functional MRI, Magnetic stimulation, Diffusion tensor imaging, Brain plasticity