Poststroke Recovery and Predictors of Bimanual Hand Use

Stroke survivors often have trouble with tasks that require both hands due to difficulty in recovering motor functions in the affected limb.

However, recovery of bimanual hand use remains largely unstudied.

Study question: How does bimanual hand use recover over time in relation to unimanual motor impairment and what are the key predictors of recovery?

89 patients with first-ever stroke and arm paresis.

Initial bimanual hand use performance was poor but increased over time.

In patients with moderate-severe initial unimanual motor impairment, FMA-SAFE score was the strongest predictor of bimanual hand use outcome and degree of recovery.

Bimanual hand use recovery depends on corticospinal tract injury and initial sensory and cognitive impairment, but FMA-SAFE score is its strongest predictor.

Prospective longitudinal study

Outcomes measured
- Bimanual hand use
- Unimanual motor impairment

Predictors measured
- Shoulder abduction and finger extension (FMA-SAFE score)
- Sensory and cognitive impairment
- Neuroimaging predictors

In analyses without FMA-SAFE score, wCST-LL and sensory and cognitive impairment were additional predictors.

In patients with moderate-severe initial unimanual motor impairment, FMA-SAFE score was the strongest predictor of bimanual hand use outcome and degree of recovery at all time points.

Shoulder abduction and finger extension (FMA-SAFE score)

Sensory and cognitive impairment

Neuroimaging predictors

Resting-state interhemispheric functional connectivity

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Prospective longitudinal study
At 3 weeks, 3 months, and 6 months

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