

Upper extremity functioning during the first year after stroke

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- I. Persson HC, Parziali M, Danielsson A, Sunnerhagen KS. Outcome and upper extremity function within 72 hours after first occasion of stroke in an unselected population at a stroke unit. A part of the SALGOT study. *BMC Neurol.* 2012;12:162.
- II. Persson HC, Opheim A, Lundgren-Nilsson Å, Alt Murphy M, Danielsson A, Sunnerhagen KS. Differences in recovery of upper extremity functioning after ischemic and hemorrhagic stroke – a part of the SALGOT study. *Submitted manuscript.*
- III. Persson HC, Alt Murphy M, Danielsson A, Lundgren-Nilsson Å, Sunnerhagen KS. A cohort study investigating a simple, early assessment to predict upper extremity function after stroke - a part of the SALGOT study. *BMC Neurol.* 2015;15:92.
- IV. Persson HC, Danielsson A, Sunnerhagen KS. A cross sectional study of upper extremity strength ten days after a stroke; relationship between patient-reported and objective measures. *BMC Neurol.* 2015;15(1):178.



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ABSTRACT

The overall aim of this thesis was to investigate upper extremity functioning during the first year after stroke from different perspectives.

Methods. All patients with first ever stroke, admitted to a stroke unit within 72 hours after stroke incidence were included during a period of 18 months. The prevalence of impaired upper extremity function was investigated within 72 hours. Differences in change over time in functioning (function and activity) between patients with ischemic and hemorrhagic stroke were explored. The possibility of a simple early assessment to predict the level of upper extremity motor function required for a drinking task was investigated, as well as the relationship between patient-perceived and assessed strength capacity. The studies are a part of the SALGOT-study (The Stroke Arm Longitudinal Study at the University of Gothenburg).

Main results. Of patients admitted to a stroke unit, 48% had impaired upper extremity function within 72 hours after stroke onset. In patients with impaired upper extremity function initially, those with hemorrhagic stroke had a larger improvement from 1 to 3 months in their function and activity compared to patients with ischemic stroke. Patients with hemorrhagic and ischemic stroke improved function and activity to a similar level 3 months and thereafter. Two items from the Action Research Arm Test (ARAT) used at 3 days post stroke could accurately predict the level of motor function required for a drinking task at three later time points during the first year post stroke. Assessed grip strength capacity and perceived strength at 10 days post stroke correlated highly, but some patients rated their strength differently compared to the assessment of strength capacity.

Conclusions and clinical implications. Fewer patients than previously described had impaired upper extremity function early after stroke which is of importance in planning of care and rehabilitation. In patients with impaired upper extremity function, larger improvements of function and activity were seen after 1 month in those patients with hemorrhagic stroke compared to ischemic, but both stroke types reached a similar level at 3 months post stroke. These results together with the finding that early prediction of function is possible, and that a combination of patient-reported and objective strength assessment early after stroke may be valuable in planning of care, rehabilitation and goal setting, and therefore improve the overall rehabilitation process.

Keywords: Stroke recovery, Upper extremity, Paresis, Outcome, Process assessment, Cerebral haemorrhage, Ischemic stroke, Prognosis, Motor skills, Movement, Rehabilitation, Treatment outcome, Muscle strength, Self-report

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