

Probability of regaining dexterity in the flaccid upper limb: impact of severity of paresis and time since onset in acute stroke

*Kwakkel G, Kollen BJ, van der Grond J, Prevo AJH*

Centre of Excellence for Rehabilitation Medicine "De Hoogstraat", Utrecht

**Background and purpose.** To improve the accuracy of early postonset prediction of motor recovery in the flaccid hemiplegic arm, the effects of change in motor function over time on the accuracy of prediction were evaluated, and a prediction model for the probability of regaining dexterity at 6 months was developed.

**Methods.** In 102 stroke patients, dexterity and paresis were measured with the action research arm test, motricity index, and Fugl-Meyer motor evaluation. For model development, 23 candidate determinants were selected. Logistic regression analysis was used for prognostic factors and model development.

**Results.** At 6 months, some dexterity in the paretic arm was found in 38%, and complete functional recovery was seen in 11.6% of the patients. Total anterior circulation infarcts, right hemisphere strokes, homonymous hemianopia, visual gaze deficit, visual inattention, and paresis were statistically significant related to a poor arm function. Motricity Index leg scores of at least 25 points in the first week and Fugl-Meyer arm scores of 11 points in the second week increasing to 19 points in the fourth week raised the probability of developing some dexterity (action research arm test  $\geq 10$  points) from 74% (positive predictive value [PPV], 0.74; 95% confidence interval [CI], 0.63 to 0.86) to 94% (PPV, 0.83; 95% CI, 0.76 to 0.91) at 6 months. No change in probabilities of prediction dexterity was found after 4 weeks.

**Conclusions.** Based on the Fugl-Meyer scores of the flaccid arm, optimal prediction of arm function outcome at 6 months can be made within 4 weeks after onset. Lack of voluntary motor control of the leg in the first week with no emergence of arm synergies at 4 weeks is associated with poor outcome at 6 months.

G. Kwakkel, Centre of Excellence for Rehabilitation Medicine "De Hoogstraat",  
Rembrandtkade 10, 3583 TM Utrecht, The Netherlands, t +31-30-2509210

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