Soft robotic hand therapy

Few studies focused on the risk factors for hand rehabilitation of intracerebral hemorrhage (ICH) using of soft robotic hand therapy (SRHT). The aim of this study was to establish a predictive nomogram for soft robotic hand rehabilitation in patients with ICH.

Methods: According to the Brunnstrom motor recovery (BMR) stage, the patients were grouped into poor and good motor function groups. The data of patient demographic information and serum level of C-terminal Agrin Fragment (CAF), S100B and neurofilament light (NfL) were collected. The logistic regression was used to analyze the risk factors for poor hand function.

Results: Finally, we enrolled 102 and 103 patients in the control and SRHT groups. For the SRHT group, there were 17 and 86 cases with poor and good motor function at 6-months follow-up respectively. In the good motor function group, the Fugl-Meyer Assessment-Wrist and Hand (FMA-WH score) and BMR score at admission were all better than that in the poor motor function group respectively ($p < 0.001$). The mean serum level of CAF, S100B and NfL in the good motor function group were 2.5 ± 0.82 ng/mL, 286.6 ± 236.4 ng/L and 12.1 ± 10.4 pg/mL respectively, which were lower than that in the poor motor function group ($p < 0.001$, Table 3). The multivariate logistic regression showed that hematoma volume (OR = 1.47, p = 0.007), FMA-WH score admission (OR = 0.78, p = 0.02), S100B (OR = 1.32, p = 0.04), and NfL (OR = 1.24, p = 0.003) were all significant predictors of poor motor function.

Conclusions: We found that Soft robotic hands therapy benefited in hand function in patients with ICH and hematoma volume, FMA-WH score admission, S100B, and NfL were all significant predictors for poor motor function of patients with ICH [1].

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Jin P, Jiang W, Bao Q, Wei W, Jiang W. Predictive nomogram for soft robotic hand rehabilitation of patients with intracerebral hemorrhage. BMC Neurol. 2022 Sep 6;22(1):334. doi: 10.1186/s12883-022-02864-2. PMID: 36068493.