Stroke case series

2023

Forty-five chronic stroke participants were randomized into 3 groups: a bilateral transcranial direct current stimulation and treadmill training group; a cathodal transcranial direct current stimulation and treadmill training group; and a sham transcranial direct current stimulation and treadmill training group for 50 min per session (20 min transcranial direct current stimulation followed by 30 min treadmill training), 3 sessions per week for 4 weeks. Outcome measures included cognitive dual-task walking, motor dual-task walking, walking performance, contralesional cortical activity, and lower-extremity motor control.

The cathodal transcranial direct current stimulation + treadmill training group showed significantly greater improvements in cognitive dual-task walking speed than the other groups (p cathodal vs sham = 0.006, p cathodal vs bilateral = 0.016). In the cathodal transcranial direct current stimulation + treadmill training group the silent period duration increased significantly more than in the other groups ($p < 0.05$). Changes in motor-evoked potentials in the cathodal transcranial direct current stimulation + treadmill training group were greater than those in the sham transcranial direct current stimulation + treadmill training group ($p < 0.05$). No significant changes were observed in the bilateral transcranial direct current stimulation + treadmill training group.

Cathodal transcranial direct current stimulation followed by treadmill training is an effective intervention for improving cognitive dual-task walking and modulating contralesional cortical activity in chronic stroke. No beneficial effects were observed after bilateral transcranial direct current stimulation and treadmill training [1).

2020

A total of 145 patients were included (pre, 42; post, 103). Time from recognition to stroke neurologist assessment (91 vs. 35 min, p = 0.002) and time from recognition to neuroimaging (123 vs. 74, p = 0.013) were significantly lower in the post-implementation period. Time from stroke neurologist assessment to groin puncture was significantly lower (135 vs. 81, p = 0.037). In the post-implementation period, DC group showed significant time savings from last known well (LKW) to recognition (93 vs. 260, p = 0.001), LKW to stroke neurologist assessment (145 vs. 378, p = 0.001), and recognition to stroke neurologist assessment (16 vs. 76, $p < 0.001$) compared with non-DC group.

Reorganization of IHS code protocol reduced time from stroke recognition to assessment and treatment time. Reorganized IHS code and direct consultation with a stroke neurologist improved the initial response time [2)].

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611 ischemic and 805 hemorrhagic stroke patients who were admitted within 24 h after the symptom onset. Data were analyzed with independent t test and Chi square test, and then with multivariate logistic regression analysis.

In ischemic stroke, National Institutes of Health Stroke Scale (NIHSS) score (OR 1.08; 95 % CI

1.06-1.11; P < 0.01), white blood cell count (OR 1.11; 95 % CI 1.05-1.18; P < 0.01), systolic blood pressure (BP) (OR 0.49; 95 % CI 0.26-0.90; P = 0.02) and age (OR 1.03; 95 % CI 1.00-1.05; P = 0.03) were associated with in-hospital mortality. In hemorrhagic stroke, NIHSS score (OR 1.12; 95 % CI 1.09-1.14; P < 0.01), systolic BP (OR 0.25; 95 % CI 0.15-0.41; P < 0.01), heart disease (OR 1.94; 95 % CI 1.11-3.39; P = 0.02) and creatinine (OR 1.16; 95 % CI 1.01-1.34; P = 0.04) were related to in-hospital mortality. Nomograms using these significant predictors were constructed for easy and quick evaluation of in-hospital mortality.

Variables in acute stroke can predict in-hospital mortality and help decision-making in clinical practice using nomogram [3].

1)

Wong PL, Yang YR, Huang SF, Wang RY. Effects of Transcranial Direct Current Stimulation Followed by Treadmill Training on Dual-Task Walking and Cortical Activity in Chronic Stroke: A Double-Blinded Randomized Controlled Trial. J Rehabil Med. 2023 Mar 21;55:jrm00379. doi: 10.2340/jrm.v55.5258. PMID: 36943024.

2)

Kawano H, Ebisawa S, Ayano M, Kono Y, Saito M, Johno T, Maruoka H, Ryoji N, Yamashita H, Nakanishi K, Honda Y, Amano T, Unno Y, Komatsu Y, Ogawa Y, Shiokawa Y, Hirano T. Improving Acute In-Hospital Stroke Care by Reorganization of an In-Hospital Stroke Code Protocol. J Stroke Cerebrovasc Dis. 2020 Nov 4;30(1):105433. doi: 10.1016/j.jstrokecerebrovasdis.2020.105433. Epub ahead of print. PMID: 33160124.

3)

Ho WM, Lin JR, Wang HH, Liou CW, Chang KC, Lee JD, Peng TY, Yang JT, Chang YJ, Chang CH, Lee TH. Prediction of in-hospital stroke mortality in critical care unit. Springerplus. 2016 Jul 11;5(1):1051. doi: 10.1186/s40064-016-2687-2. eCollection 2016. PubMed PMID: 27462499.