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A RANDOMISED PILOT STUDY OF CARDIOVASCULAR PATIENTS WITH HEMISPHERIC ISCHAEMIC STROKE AGAINST A BACKGROUND OF EARLY VERTICALISATION

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Abstract
Stroke is one of the leading causes of death worldwide. A strong inflammatory response, characterised by the activation and release of cytokines, chemokines, adhesion molecules and proteolytic enzymes, contributes to brain damage after stroke. Stroke outcomes are worse among diabetics, leading to increased mortality and disability.

Keywords: Stroke, randomised pilot study, early verticalisation

Introduction

Stroke is the leading cause of acquired permanent disability worldwide. Although treatment of acute stroke has improved dramatically, the majority of patients today remain disabled, with significant impact on functional independence and quality of life. As the absolute number of stroke survivors is likely to continue to increase due to demographic changes in our ageing society, new strategies are needed to improve neurorehabilitation. The most important factor in functional recovery after stroke is neural remodelling. A better understanding of the mechanisms that enable plasticity and recovery is needed to develop new, neurobiologically based strategies that promote functional recovery. Clinicians are increasingly interested in using aerobic exercise to improve functional outcomes after stroke. Several studies have demonstrated the effectiveness of exercise training in individuals in the chronic post-stroke period. However, information on the response to exercise in the earlier stages of recovery is limited. The aim of this article is to provide an overview of what is known about the ability of people in the first period after stroke (<4 months) to respond to physiological demands for exercise (exercise capacity), and about their ability to adapt the cardiovascular system to aerobic exercise in the long term. exercise. There is evidence that exercise tolerance, as measured by peak oxygen consumption in maximum-load tests, is reduced in this population. There is also evidence, although limited, that exercise capacity soon after stroke can be both feasible and safe if appropriate screening and monitoring are used. Moreover, there are early indications that activity level functions such as walking speed, mobility and balance can be

improved with such programmes. Further research is needed to ascertain the most appropriate timing and design of fitness programmes for people in the early post-stroke period.

Purpose of the Study

To study the adaptation of the cardiovascular system in patients with hemispheric changes in ischaemic stroke against the background of early verticalisation.

Materials and Methods

The study was conducted during 2020-2022 from January to September Our clinical study involved 40 patients who were treated with the diagnosis of "acute cerebral circulation disorder of ischemic type on the background of CHD" in the branch of RNMPNTs Bukhara**.** Consecutive patients with a vegetative state or a state of minimal consciousness were admitted to the intensive care unit on the third day after an acquired brain injury. They were randomised to receive conventional physiotherapy alone or in combination with fifteen 30-minute sessions of verticalisation using an inclined table with robotic stepping. After stabilisation, patients were transferred to our neurorehabilitation unit for individual treatment. Outcome criteria (Glasgow Coma Scale, Coma Recovery Scale Revised -CRSr-, Disability Rating Scale (DRS- and cognitive functioning levels) were assessed at day three after injury (T0), on discharge from the intensive care unit (T1) and on discharge from the rehabilitation centre (T2). Comparisons between and within groups were made using the Mann-Whitney U-test and Wilcoxon sign-rank test, respectively.

RESULTS

In patients with ischaemic stroke with a background of CHD, verticalisation improves arousal and consciousness in patients with severe acquired brain injury and is safe in the intensive care unit. We evaluated the effectiveness of the very early step verticalisation protocol on their functional and neurological outcome. Of the 40 included patients, 31 completed the study without adverse effects (15 in the verticalisation group and 16 in the conventional physiotherapy group). Early verticalisation started 12.4±7.3 (mean ± standard deviation) days after acquired brain injury. Length of stay in OIT was longer in the verticalization group (38.8 ± 15.7 vs 25.1 ± 11.2 days, p = 0.01), while total length of stay (OIT + neurorehabilitation) was not significantly different (153.2 ± 59.6 vs 134.0 ± 61.0). days, p = 0.41). All outcome measures improved significantly in both groups after the total period (T2 vs T0, p<0.001 for all), and after ICU stay (T1 vs T0, p<0.004 for all) and after

neurorehabilitation (T2 vs T1, p<0.004). all). Improvement was significantly better in the experimental group for CRSr (T2-T0 p=0.033, T1-T0 p=0.006) and (borderline) for DRS (T2-T0 p=0.040, T1-T0 p=0.058).

Conclusions. A staged verticalisation protocol initiated from the acute stages improves short- and long-term functional and neurological outcomes in patients with acquired brain injury and (borderline) for DRS (T2-T0 p = 0.040, T1-T0 p = 0.058). A staged verticalisation protocol initiated in the acute stages improves short- and long-term functional and neurological outcomes in patients with acquired brain injury and (border) for DRS (T2-T0 p = 0.040, T1-T0 p = 0.058).

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