

NEUROPHYSIOLOGICAL MONITORING IN THE REHABILITATION OF PATIENTS WITH ISCHEMIC STROKE

S.G.HUSEYNOVA, F.K.BALAKISHIYEVA, E.E.MUSTAFAYEVA

Research Institute of Medical Rehabilitation, Baku, Azerbaijan

Introduction. Ischemic stroke (IS) is one of the main reasons of disability and death in the world. Motor disorders serve as a main reason of disability among the patients suffering from IS. Improvement of brain flexibility mechanisms by external noninvasive methods, such as therapeutic transcranial magnetic stimulation (TMS) is very important in the neurological rehabilitation of patients with poststroke motor disorders (PMD).



The purpose of the research work was to study the effectiveness of the therapeutic TMS for the patients suffering from PMD at the rehabilitation stage by using neurophysiological monitoring.



Materials and methods. Clinical and neurophysiological studies were conducted on 89 patients with hemiparesis after IS. All patients passed a rehabilitation course before and after which a diagnostic TMS was carried out.

- Key group (57 patients)

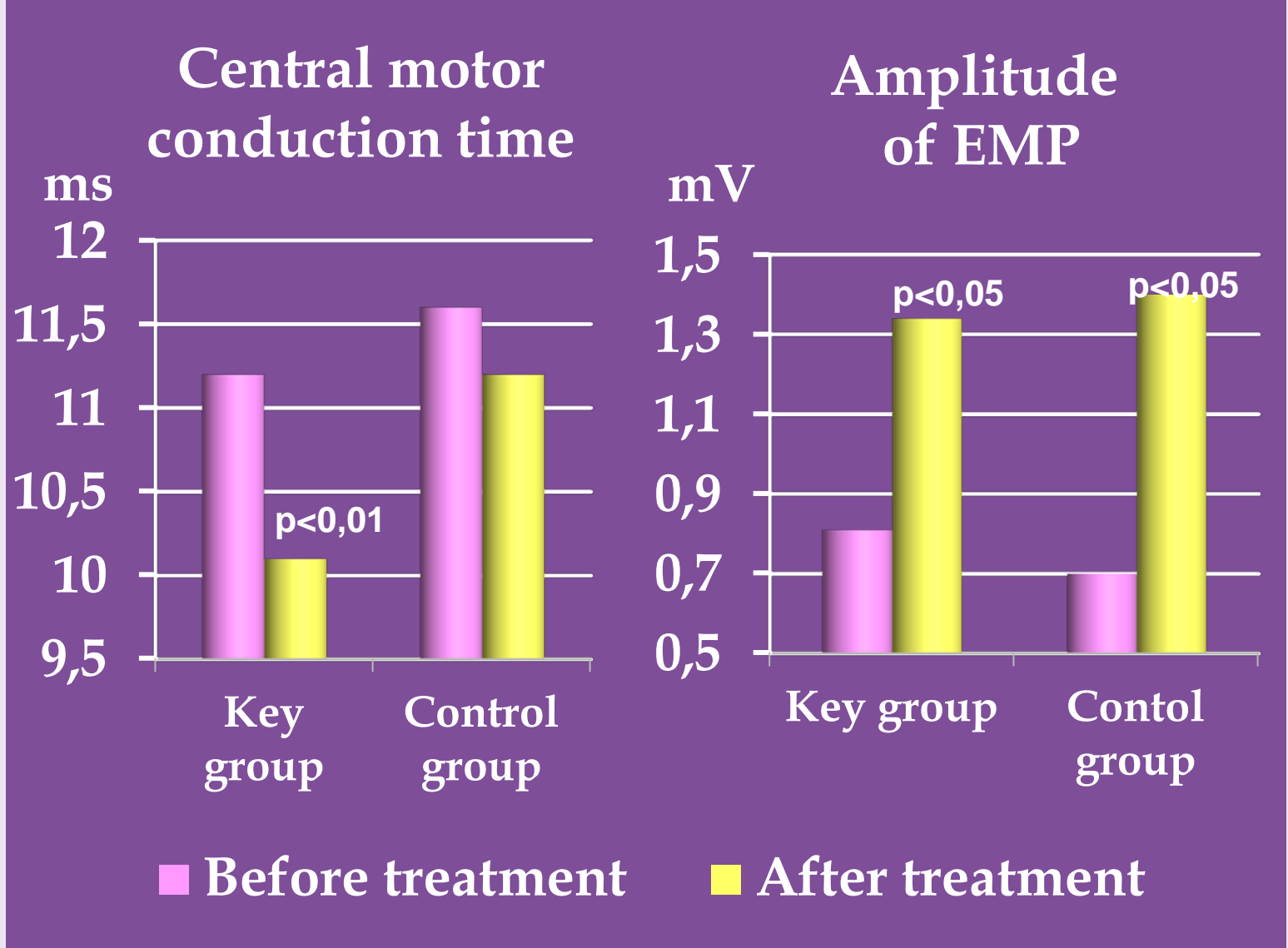
 - 1.Therapeutic TMS (by the device “Magstim Rapid” (Great Britain)) by intervention on both hemispheres of brain, magnetic stimulation (MS) of neuromuscular apparatus where hemiparesis is developed.
 - 2. Massage
 - 3. Therapeutic exercises
- Control group (32 patients):

 - 1.Therapeutic TMS of motor cortex of the affected side.

Results: Motor functions of the patients were improved after the rehabilitation course: active movements increased (39,4%), spasticity reduced (32,2%), the manner of walking and vertical posture improved (39,3%), new movements developed (33,5%).

As a result of applied therapy, daily activity of poststroke patients was improved, which is supported by positive dynamics of the indicators of Bartel scale. Overall value (Bartel Index) increased up to $78,5 \pm 3,3$ scores ($p < 0,01$).

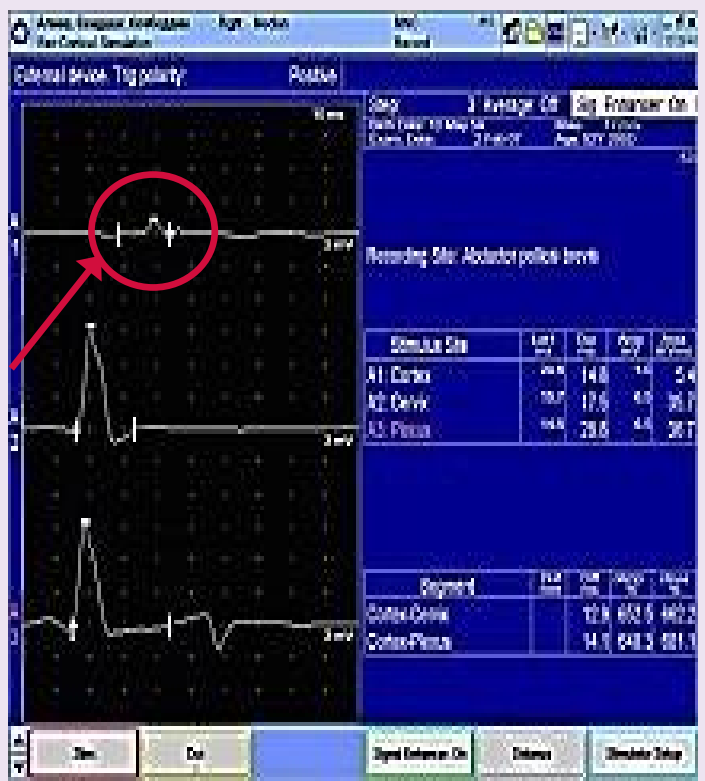
After the treatment a significant positive dynamics of neurophysiological indicators was observed in the patients of the main group. At the end of the course, evoked motor potential (EMP) threshold was reduced, latency was shortened, central motor conduction time (CMCT) was reduced in the patients of the main group. Positive increase of EMP amplitude was observed on affected and intact sides ($p < 0,001$).



More apparent impact of the applied methodology on EMP values was observed in 5 patients with stroke of the left hemisphere and at an early rehabilitation period of the disease.



Before treatment



After treatment

Conclusion

1. Great efficiency of rehabilitation was established for the patients with IS, who received TMS by intervention on both hemispheres of the brain.
2. Neurophysiological monitoring of the rehabilitation process carried out by using a diagnostic TMS allows to control the neuroplastic processes and improve the effectiveness of rehabilitation.

