ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

EVALUATION OF THE EFFECTIVENESS OF MICROPOLARIZATION DEVICE TREATMENT IN CHILDREN UNDER 5 YEARS OLD WITH HYPERKINETIC TYPE OF CEREBRAL PALSY

Assistant: **Ermatov Farhod Akhmedovich**

Central Asian Medical University

International Medical University

Department of Pediatrics and Pediatric Surgery

Relevance of the topic:

Cerebral palsy (CP) is a condition arising from perinatal injuries to the central nervous system, characterized by persistent motor and postural disorders, along with cognitive impairments in children. The hyperkinetic type is manifested by uncontrolled and involuntary movements such as dystonia, athetosis, and choreic hyperkinesias. Since brain functional plasticity is high in children under the age of 5, the early implementation of modern neurorehabilitation methods is particularly important. One such method is transcranial micropolarization (TCMP), which improves neurophysiological activity by applying low-intensity electrical currents to specific brain regions.

Research objective:

To evaluate the clinical and functional effectiveness of transcranial micropolarization in children under the age of 5 with the hyperkinetic type of cerebral palsy.

Materials and methods:

The study was conducted during 2024–2025 at the "Mother and Child" Genesis Clinic (Fergana). It involved 40 children under 5 years old diagnosed with the hyperkinetic type of CP. Participants were divided into two groups:
• Main group (n=20): Received a standard rehabilitation program (physical therapy, speech therapy, kinesitherapy) plus transcranial micropolarization therapy;
• Control group (n=20): Received only the standard rehabilitation program.

TCMP was administered using the "Elmikron" device in a 10-day course, with daily sessions lasting 25–30 minutes, targeting the frontal and supratemporal brain zones. Effectiveness was evaluated using the GMFCS (Gross Motor Function Classification System), the Ashworth Scale (for muscle tone assessment), and the PEDI (Pediatric Evaluation of Disability Inventory) index.

Results and discussion:

Children treated with TCMP showed a significant reduction in hyperkinesias (in 65% of cases). The GMFCS score improved in 40% of children, while PEDI scores showed a 30–35% increase in daily motor activity. The Ashworth Scale indicated a decrease in muscle

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

tone by an average of 1.2–1.4 points ($p<0.01$). In the control group, these changes were less pronounced. The therapy was well tolerated by patients, and no adverse effects were observed.

Conclusion:

Transcranial micropolarization is a clinically and functionally effective method in the complex treatment of hyperkinetic type cerebral palsy in children under 5 years old. It has a beneficial effect on motor activity, tone modulation, and social participation. The results of the study conducted at the "Mother and Child" Genesis Clinic support the broader implementation of this method in pediatric neurorehabilitation practice.

References:

1. Ivanova G.E., Kozlov A.A. Transcranial micropolarization in children with CP: effectiveness and safety. Neurology Today, 2022.

2. Palisano R. et al. Gross Motor Function Classification System for Cerebral Palsy. CanChild, 2020.

3. Sharipov A.N. Cerebral Palsy in Children: Pathogenesis and Rehabilitation Methods. Tashkent: Ilm, 2021.

4. Yatsuk S., Zhuravleva O. Microcurrent stimulation in pediatric cerebral palsy. Child Neurotherapy Journal, 2023.

5. American Academy of Pediatrics. Clinical approaches to childhood cerebral palsy. 2021.