

SINGLE EVENT MULTILEVEL SURGERY ON THE LOWER LIMBS IN CHILDREN WITH CEREBRAL PALSY

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Introduction. Treatment of children with CP with different pathological settings and multiplanar deformities of the lower limbs in need of systematization and differentiated approach.

To compare the efficacy of the differentiated use of simultaneous multilevel interventions in the lower extremities, with the standard phased treatment of pathology of the hip, knee and feet in children with cerebral palsy.

Materials and methods. We have examined and treated 125 children with CP, aged 4-16 years, the level of motor activity of GMFCS: in 10 patients - I level, 26 - II level, 29 - III, 37 - IV, 23 - V. The children were divided into two subgroups (primary - 60 patients and the control group - 65). The mean follow-up - 6.4 years. Examination - according to the standard procedures: before and during treatment - clinical, radiographic, biomechanical, neurological, ultrasound, electromyography and muscle dynamometry.

Results. In children aged 4-8 years, 27 children of the main group, depending on the severity and type of pathologic deformities of the lower limb joints simultaneously performed soft tissue intervention at the level of the hip, knee, ankle joints and also eliminate the deformity of foot. Postoperatively, main group were provided with orthoses for verticalization and walk or performed immobilization in a cast for 3-4 weeks to maximize the rapid mobilization for 3-5 days after surgery. In the control group intervention performed successively on each of the limbs without performing hemiepiphysiodesis with immobilization by cast. After 4-6 weeks after surgery children from both subgroups were received rehabilitation treatment. In children aged 8-16 years, 33 children of the main group simultaneously were performed soft tissue surgery at the level of the joints of the lower limbs in combination at an interval of 1-1.5 months corrective intertrochanteric hip osteotomy and operations in the pelvic component. The postoperative period was performed similarly to the above principles.

Findings. The obtained data of retrospective assessment of long-term results of simultaneous multi-level interventions in the lower extremities authentically indicate the prospects application of this technique in children with cerebral palsy. Due to an early activation, children from the study group have significantly improved locomotor activity compared to the control group.

SURGICAL TREATMENT OF HIP JOINT PATHOLOGY IN CHILDREN WITH CEREBRAL PALSY

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Introduction. The pathology of the hip in children with cerebral palsy is one of the most severe in pediatric orthopedics and occupies one of the most important problems in the surgical treatment of this pathology. The incidence of children with cerebral palsy 2 in 1000, where spastic hip subluxation and dislocation depends on the severity of the disease and forms of cerebral palsy, variable between 2,5% with spastic hemiplegia and 75% in children with quadriplegia.

Objective. To present the experience an integrated approach surgical treatment of hip joint pathology in children with cerebral palsy.

Materials and methods. We treated and carried out a retrospective study of 144 children with subluxation and dislocation of the hip. The children were divided into two main groups. The first group included 128 patients (179 hips) (activity level of GMFCS: 41 patients - II level in 49 - III, 18 - IV,) and is divided into two subgroups by age: 1st - children from 2 to 6 years (54 patients); 2nd - 6 - 12 years (74 children). Mean follow-up of 5.8 years. The second group of patients included 16 patients (25 hips) aged 4 to 8 years, with valgus deformity of the proximal femur with a tendency to decentration and subluxation of the hip. The level of motor activity of GMFCS: 7 patients - II level and 9 - III. In this group performed hemiepiphysiodesis of the proximal growth plate of the femoral head on the medial surface. Mean follow-up of 2.6 years. The examination was conducted according to generally accepted methods: before and during treatment - clinical, radiographic, biomechanical, neurological, ultrasound, electromyography and muscle dynamometry.

Results. Among the 54 children (1st subgroup) in 37 children aged 2-6 years, depending on the severity and type of pathological positions of the joints of the lower limbs, we performed soft tissue surgery at the level of the hip joint (adductors and subspina iliaca myotomy, cutting off tendons m.ileopsoas from the lesser trochanter), combined with intervention on the bone components of the hip joint (36 children) (intertrochanteric osteotomy of the femur and pelvic osteotomy - if indicated). In the 2nd subgroup among the 74 children soft tissue surgery performed in 56 children, combined with intervention on the bone in all patient. Postoperatively children were provided by orthoses for verticalization and walk or performed immobilization in a cast for 3-4 weeks from the upper thigh to the toes to maximize the rapid mobilization for 3-5 days after surgery. After 4-6 weeks after surgery children both subgroups received standart complex of rehabilitation treatment. The initial value of the cervico-diaphyseal angle was an average of $156^{\circ} \pm 8^{\circ}$, after surgery $118^{\circ} \pm 5^{\circ}$, and after 5 years - the angle averaged $123^{\circ} \pm 6^{\circ}$. The acetabular index before surgery was $31^{\circ} \pm 5^{\circ}$, immediately after surgery, $14^{\circ} \pm 4^{\circ}$, and after 5 years - $16^{\circ} \pm 3^{\circ}$.

In the second group of patients, we used the intervention on the medial part of the growth plate of the femoral head - of temporary or permanent hemiepiphysiodesis using a metal implant or bone auto- or allograft. These surgery did not require immobilization in a cast, the children were transferred to upright position on 3-5 days after surgery. According to methods underwent surgery of 25 joints in 16 patients, only 3 joints observed lack of effect of carrying out the intervention. The initial value of the cervico-diaphyseal angle was an average of $159^{\circ} \pm 6^{\circ}$, and after 2,6 years - $149^{\circ} \pm 5^{\circ}$.

Findings. Obtained data show that surgical treatment of hip joint pathology in children with cerebral palsy should be execute differently according to age, form of cerebral palsy and the level of physical activity. We have seen that standard methods of surgical treatment is effective but perform hemiepiphysiodesis in preventive surgery of the hip joint in children with neurological disorders as the prevention of instability of the hip is a promising method of treatment.