APPLICATIONS OF KINETOTHERAPY IN CONGENITAL HIP DISLOCATION

***Danelciuc Francisc Tadeus*[1]**
[1]*The Chronicle of Neuropsychiatric Hospital Siret,Romania*

Keywords: dislocation, congenital, kinetotherapy.

Abstract: The congenital hip dislocation is one of the serious limb malformations, which untreated on time determines functional sequelae with high degree of disability. Due to increased incidence, of the severe functional disability it causes and evolution to coxarthrosis, congenital hip dislocation represents a public health problem.

Introduction.

Dislocation, subluxation and simple hip dysplasia are three degrees of the same congenital anomaly called developmental dysplasia of the hip, defined with the help of radiographic and anatomical data.In case of dislocation,the femoral head emerges from the cotyloid cavity, is no longer in contact with the acetabulum and moves up or sideways.In the case of subluxation, the femoral head tends to migrate in the same direction, in a large and flat cotyloid and thus remains in contact with the articular surface of this cotyloid. Dysplasia is not accompanied by femoral head movement.

The problem of diagnosis in congenital hip dislocation is particularly important; the sooner the diagnosis will be made and the treatment set up sooner, its efficiency will be bigger. In practice, the early detection period is between the time of birth and the age of 3-4 months. During this time, diagnosis is difficult, but there are all conditions for getting a good result.The late detection period begins after the age of 3-4 months. With the start of walking, the preluxation stage progressively turns into dislocation due to the concomitant action of body weight. All unstable or dysplastic hips should be diagnosed from birth, preferably in the first week and treated immediately because it is not known which hip will correct spontaneously and which will evolve to subluxation or dislocation.

Material and method

The treatment is different, depending on the age of the child and the degree of disability: dysplasia or dislocation. In case of dysplasia prophylactic treatment is very important, careful examination of newborn hips allows an early clinical diagnosis, which will or may not be confirmed by the radiological and / or ultrasound examination.

The newborn with positive Ortolani sign and with positive echographic signs, as well as infants with radiographic signs of dysplasia they will be put into splint abduction . Maintenance of pelvic limbs in abduction, flexion and external rotation (position where the femoral head is well centered in the cotyloid cavity)is done by:

- trapezoidal pillows placed between the legs (type Frejke, Becker);
- Von Rosen Splint;
- Pavlik Harness.

At birth, when the unstable hip is recognized, maintaining it in flexion and abduction for 1 to 2 months is usually sufficient.

Kinetic treatment

Treatment by specific and non-specific kinetic methods must be applied both during the immobilization period, and during the pre- and postoperative period.

Physical therapy during immobilization in gypsum or orthopedic appliances „of posture" has a role in combating troublesome symptoms, preventing vicious positions and in achieving functional and resting positions of the joint. The interest in early mobilization is very high because it prevents the occurrence of joint stiffness and muscle hypotonia / hypotrophy.

In the preoperative period, the kinetic treatment objectives are:

- maintaining mobility of the unaffected joints;
- maintaining the trophicity of the hip and thigh muscles;
- toning muscles of the upper part;
- preparing for the positions what will be adopted;

Postoperative kinetotherapy has as objectives**:**

- correct posture and normal body alignment;
- Analytical mobilization of all lower limb joints;
- consolidation / recovery of hip stability;
- consolidation / recovery of controlateral stability;
- consolidation / recovery of muscle control and ability;

- education / re-education of walking;
- ensuring psychomotor development age-appropriate;
- orthopedic hip hygiene.

The study was conducted at the "St. John the New" Hospital in Suceava, in the orthopedics department,infantile surgery and balneophysiotherapy and medical recovery, on an experimental group of 14 children, between the ages of 4 months and 8 years,selected randomly, with the congenital left dislocation (7), right (5), bilateral (2).

For each individual case, we appreciated the results of the general clinical examination, laboratory investigations, local exam, radiological, treatment and post-treatment treatment.

For each patient there was a file in which they were mentioned :

- Common identity data;
- Objective Exam;
- Personal physiological and pathological antecedents;
- Joint examination with the results obtained in the two tests (initial and final);

Exercise programs are designed according to the recovery period and the goals we are pursuing.In the following way:

1. During the **immobilization** period, the exercises are aimed at: maintaining the tonus and contractile capacity of untreated muscles, prevention of joint stiffness, prevention of trophic disorders,maintaining a normal cortical tonus, maintaining the trophicity of the hip and thigh muscles.

There are daily 3-4 kinesitherapy sessions consisting of:

- Isometric contractions of quadriceps and gluteus maximus, using proprio and exteroceptive stimulation in the infant, and for small child adaptive special materials and toys.
- Isotonic contractions assisted by physical therapist for hip and knee flexor muscle groups.For the little child through stimulation, and for the big baby through commands.
- Isometric and isotonic contractions against resistance in the distal muscular groups of the affected inferior limb and, muscle groups of the healthy inferior limb.
- Passive mobilizations.
- General and partial massage. Muscle contracture receive physiotherapeutic treatment, light baths associated with classic massage, vibromassage, underwater massage.

• Using excitomotor current (medium and low frequency at the level of the muscular masses).

2. In the **post-operative / post-immobilisation** period

A. Obtaining normal body alignment:

• Passive mobilization in the lower limb joints,used for corrective purposes, general and local toning, prophylactic for joint stiffness.

• Correct positioning: in dorsal decubitus with a pillow between the knee - for infants; and ventral decubitus positioning to avoid the installation of a hip flexion - to the child over three years.

B. Analytical mobilization of all lower limb joints:

• Passive mobilization:

-at the level of the affected member, methodical mobilization begins with interphalangeal joints, continues with ankle and knee joint and ends with the hip joint where it insists on extension, abduction and external rotation.

In the newborn, the hip is not functional and structurally able to be placed in the extension, because it can favor subluxation of the posterior femoral head(is avoided sudden deflection of the hip).

• Autopassive mobilizations(for the big baby)

In autopasive mobilizations, suspend exercises are preferred and traction in the lower limb shaft made by the patient with upper limbs or with the healthy lower limb.

• Hydrokinetotherapy partial or general, doing exercises active, passive-active, passive.

• Free active mobilizations.

In infants, it is accomplished by triggering reactions targeted by extero- and proprioceptive stimulation,and with the help of special materials.In the big baby, it will insist on regaining the first degrees of flexion, abduction, external rotation and extension to stabilize the hip.

C. Strengthening or Recovering Stability

1. For the child who did not walk we have the objective: preparation for orthostatism, stimulation of balance.

Using the Bobath method, the child will be trained to lift in sitting,quadruped, on the knees, gradually moving into a knight's position, squat and through anteroposterior unbalances it reaches into consolidated orthostatism by lateral imbalances.

2. For the child who has been walking the aim is to restore stability, toning the muscles of the lower limbs, toning the extensor muscles of the spine, correcting vertebral deviations and the trunk position.

- Stability Recovery: the positioning makes the stability ensure not through muscle contractions but by ligament stretching.
- Muscle toning - insists on toning the gluteus maximus, the gluteus medius, the hamstrings and the quadriceps.

D. Ensuring psychomotor development age-appropriate.

Valentina Horghidan says that through psychomotor education it aims to develop the bodily scheme and the organization of the "I" to the world.

For psychomotor education and re-education Guilmain recommends a complex therapy which addresses three aspects:

- Re-educating intellectual control over affective functions.
- Re-educating relational activities through exercises to reduce synkinesis and development of motor coordination.
- Re-educating tonic activity through attitude and balance exercises.

E. Education - reeducation of walking

1. Educating walking (for the child who did not walk)

Objectives: strengthening orthostatism, gaining steady reflex, stimulating walking.

- The Bobath method (for children): lifting in sitting with help;
- Balance exercises;
- The child will be supported vertically on a large diameter ball that serves as a mobile support point;
- The child will be instructed to hit the ball, push her, follow her in the move, being supported by hips;
- Standing up without help;
- Walk with help using the stick, circle and baby-walker games;
- Walk without help;
- Different variants of walking in pools and on land;
- Learning to walk ascend and descend;

2. Re-education of walking (to the child who walked).

Exercise itself goes when a child is able to maintain his / her standing position,in steady state of balance and perform alternate movements of the lower limbs. Session of re-education on land or in water,may be preceded by the application of FNP techniques.

Walking without help runs at a pace of 60-80-100-120 steps per minute, with a 1-5 minute break. Initially is resuming on walking on a flat terrain then on inclined terrain. The hardest walk at the end includes: walking with sudden stops and starts, walking on a sinuous line, walking with the change of direction, on peaks and heels.

Results:

In the following we have exemplified the dynamics of evolution and the interpretation of the values obtained in the case of the first patient in the study with congenital right hip dislocation.

Table 1 - Dynamics of the evolution of articular balance values in the case of the first patient with congenital right hip dislocation

	Flexion		**Extension**		**Abduction**		**Internal rotation**		**External rotation**	
	Initial	**Final**	**Initial**	**Final**	**Initial**	**Final**	**Initial**	**Final**	**Initial**	**Final**
The inferior healthy member	**90^0**	**90^0**	**20^0**	**20^0**	**45^0**	**45^0**	**45^0**	**45^0**	**45^0**	**45^0**
The inferior affected member	**45^0**	**85^0**	**10^0**	**15^0**	**20^0**	**40^0**	**25^0**	**30^0**	**20^0**	**25^0**
Progress	**40^0**		**5^0**		**20^0**		**5^0**		**5^0**	

GENERAL CONCLUSIONS

From the purchased data we can conclude that the recovery of congenital hip dislocation by kinetic methods is a positive one.

Through these methods, it is possible to evaluate and perform analyzes regarding the dynamics of the evolution or involution parameters in the recovery of the dislocation.

Remarks:

a) children who walk should avoid high loading of the coxofemoral joint, but this does not mean a lame walk, but avoiding orthostatism and prolonged walking.

b) Reduction of coxfemoral congenital dislocation is achieved by two forms of treatment, orthopedic, for small and uncooperative children and surgical , for large children who overstressed their hip by walking. Individual kinetic treatment is applied before and after any form of reeducation (orthopedic or surgical), imposed by the functional hip deficit.

References:

- Baciu, C.; Radovici, I. – Kinetoterapia pre şi post operatorie, Editura Sport-Turism, Bucureşti, 1981;
- Buiac, D. Copilul mic şi nevoia de mişcare, EDITIS, Bucureşti, 1994;
- Jianu, M.; Zamfir, T. Ortopedie şi traumatologie pediatrică, Editura Tradiţie, Bucureşti, 1995;
- Kiss, I. Fiziokinetoterapia şi recuperarea medicală, Editura medicală, Bucureşti, 1999;
- Robănescu, N. Reeducarea neuro-motorie, Editura medicală, Bucureşti;
- Varna, A. Diagnosticul şi tratamentul precoce al luxaţiei congenitale de şold la nou născuţi şi sugari, Oradea, 1997.

APLICAȚII ALE KINETOTERAPIEI ÎN LUXAȚIA CONGENITALĂ DE ȘOLD

***Danelciuc Francisc Tadeus*[1]**
[1]Spitalul de Neuropsihiatrie din Siret,Romania

Cuvinte cheie: luxație, congenital, kinetoterapie.

Abstract.

Luxația congenitală de șold este una dintre malformațiile grave ale membrelor, care netratată la timp determină sechele funcționale cu grad înalt de invaliditate. Datorită incidenței crescute, a handicapului funcțional sever pe care îl determină și a evoluției spre coxartroză, luxația congenitală de șold reprezintă o problemă de sănătate publică.