

Physiotherapeutic treatment in patients with hip dysplasia

Postępowanie fizjoterapeutyczne u pacjentów z dysplazją stawu biodrowego

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Streszczenie

Choroby wrodzone i nabyte narządu ruchu u dzieci często są niezauważane i rozwijają się bezobjawowo i bezbólowo. Pozostawione bez leczenia i wcześniejszej diagnozy pogłębiają się, doprowadzając do wczesnego wystąpienia zmian zwyrodnieniowych, a następnie do kalectwa.

Rozwojowa dysplazja stawu biodrowego, czyli zaburzenia w kształtowaniu i rozwoju biodra dziecięcego, występuje w Polsce ok 4% populacji noworodków. Pojawienie się i dalszy rozwój zmian patologicznych biodra może wystąpić w okresie wewnątrzmacicznym, podczas porodu czy w późniejszym dzieciństwie. Wykrycie wady w pierwszym tygodniu życia dziecka pozwala na wczesne rozpoczęcie leczenia, w konsekwencji na wyleczenie. Dlatego istotne jest staranne wykonanie badania przesiewowego stawów biodrowych.

Celem pracy jest zaprezentowanie metod fizjoterapeutycznych stosowanych w leczeniu dysplazji stawu biodrowego.

Słowa kluczowe: dysplazja stawu biodrowego, rehabilitacja, postępowanie, leczenie

Abstract

Congenital and acquired musculoskeletal diseases in children are often unnoticed and develop asymptotically and without pain. Left untreated and earlier diagnosed, they deepen, leading to early degenerative changes and subsequent disability.

Developmental hip dysplasia, i.e. disturbances in the formation and development of the infant's hip, occurs in Poland in about 4% of the newborn population. The appearance and further development of pathological changes of the hip may occur in the intrauterine period, during delivery or in later childhood. Detection of a defect in the first week of a child's life allows for early treatment and healing. Therefore, it is important to carefully screen hip joints. The aim of the work is to present physiotherapeutic methods used in the treatment of hip dysplasia.

Key words: hip dysplasia, rehabilitation, treatment, physiotherapy

Introduction

Hip dysplasia is the abnormal, pathological relationship between the femoral head and the acetabulum of the hip, as well as within them. Dysplasia is a defect of the hip joint, which was created as a result of abnormal development in the fetal, perinatal and neonatal and infancy.

The abnormal development of the intrauterine hip is affected by many factors. The most important factor is the mechanical factor, the next are hormonal and genetic factors. However, no studies have shown whether any of these factors play the most important role in the development of dysplasia [1,2].

Diagnostics and functional tests in the neonatal period

The performed clinical examination in newborns should be in their physiological flexion position of the hip joints. The child is placed on the back during the examination. The exam is evaluated:

1. Asymmetry of gluteal and femoral skin folds. This is a non-specific symptom.
2. The Ortolani test - a different sign of jumping, indicates the pathological laxity of the articular capsule. It can occur unilaterally or bilaterally.
3. Barlow's test - this is an attempt to induce subluxation or dislocation of the joint.

4. Abduction test - is an important and reliable symptom confirming hip dysplasia, if it is found in the first days of the child's life.
5. Galleazzi test - assessment of the length of the lower limbs [2,3,4,5].

Diagnostics and functional tests in infancy

Symptoms typical of a child in infancy may occur, but due to the fixation of the hip joint in a pathological position are difficult to recognize. Symptoms of developmental dysplasia change with the development of the child. Positive tests of Ortolani and Barlow are much less frequent than in the neonatal period. At this time, new clinical symptoms can be noted, such as:

1. Expanding the contours of the hip joint.
2. Asymmetry of fillet folds and their deepening.
3. A convex area of the greater trochanter.
4. Displacement upwards of the greater trochanter with the head and the neck of the femur.
5. Excessive turning of the thigh in the hip joint.
6. Large freedom of thigh rotation due to protruding the femoral head from the acetabulum.
7. Pumping symptom - indicates the high laxity of the hip joint capsule.
8. Shortening the limb - the thigh is moved upwards.
9. Limitation of abduction - is associated with shortening of the muscles that bring the thigh, which results from the continuing decentralization of the femoral head [3,4,5,6].

Diagnostics and functional tests in the period of childhood

We base the late diagnosis of hip dysplasia mainly on symptoms typical of the infancy period. Symptoms from this period may occur, but they lose their specificity due to the fixation of the hip joint in a pathological position. If the joint dislocation has not been diagnosed and treated before walking, then its symptom may be a delay in walking. Other symptoms are:

1. Trendelenburg's symptom - examines the strength of the middle gluteal muscle.
2. Duchenne's sign - occurs in the case of increased gluteus insufficiency, painfulness of the examined joint, or when the dislocation of the hip joint is advanced.
3. Walking waddling.
4. Lumbar hyperlordosis [5,6].

Physiotherapy

NDT Bobath method

Rehabilitation by the NDT Bobath method is aimed at evoking normal movement patterns in the patient by supporting the shoulder or pelvis. This method is based on reactions induced by transferring the body weight and center of gravity. Muscle strain disorders cause the formation of pathological motor patterns typical of certain disorders. Thanks to the use of appropriate techniques, it is possible to influence the muscle tone by lowering the intensified voltage and increasing the low one from the first months of the child's life. Each exercise is designed to counteract any irregularities that occur [4,7].

The Vojta method

The Vojta method, also called reflex motion therapy, consists of a diagnostic part that gives the opportunity to recognize developmental disorders in the first weeks of the child's life and the therapeutic part that allows a quick start of rehabilitation before the pathological motor patterns become established. Therapy includes provocation, stimulation of global motor patterns, and above all reflexive body rotation and creep. Reflex crawling is used to induce activity in the lower limb, adjoining proximal and positioning the acetabulum of the hip by the femoral head, which sets in external rotation, abduction and bending.

Neurophysiological methods, apart from exerting beneficial effects on joint structures, also allow the development of normal muscle play, thus stimulating the overall motor development of the child. The use of neurophysiological techniques in the diagnosis and rehabilitation of patients with developmental hip dysplasia is crucial for the effectiveness of treatment [4,7].

Rehabilitation treatment

Physiotherapy in children with developmental hip dysplasia is always treated individually depending on the assessment of the functional status. Young patients after surgery or after immobilization require intensive kinesitherapy to improve the range of mobility. It is first of all necessary to increase the range of hip movement towards flexion, internal rotation and abduction. It is important not to allow the range of external rotation exceeding the intermediate limb setting, because it promotes hip dislocation. It is also very important to restore the full range of knee movement, which is often limited by immobilization in the hip gypsum. The therapist should always measure the range of motion in the joints before the surgery. This applies to the sick and healthy side, because in order to stabilize the pelvis, the healthy limb is also immobilized. For this reason, contracture of the unoperated hip often occurs [3,8].

Due to surgery or post-operative immobilization, muscle strength is reduced. Exercises aimed at increasing muscle strength are set individually depending on the age of the child. Exercises should include both lower limbs, because a healthy limb is also often immobilized. Resistance exercises are usually preceded by free active exercises. Strengthening exercises should include mainly the gluteal and medial gluteus muscle, the iliac-lumbar muscle and the quadriceps of the thigh [7,8].

Improvement in the case of surgical treatment includes pre-operative and post-operative procedures. Improvement after surgery is divided into three periods:

I.Period of application of hip gypsum. Improvement at this stage begins on day 2 - 3 after surgery and includes the only breathing exercises. Then, after the procedure, you should introduce exercises for the upper limbs and shoulder girdle, as well as isometric exercises for the muscles of the trunk and lower limbs. During this period, frequent changes of the front or back are indicated.

II.Stage of application of functional gypsum. During this period, it is possible to perform lower limb exercises as well as upright and sit down thanks to the intersection of hip gypsum. Then, the gypsum changes to short gypsum dressing, during which the patient is initially removed only for the duration of the exercise and then for the whole day. This allows you to do lower limb exercise, which is initially limited to passive exercise. Later, passive and active exercises are introduced, and then the active exercises are carried out with the limitation of the adduction to an intermediate position. Rotational movements are introduced only after two months. During this period, you can use a sitting position for exercising, while the position of kneeling and standing is forbidden. Particularly recommended are exercises in water every other day, which work relieving and relaxing. It is also recommended to place the child on the stomach, with the weight of the buttocks with the help of a sandbag to prevent bending contraction. Exercise is performed daily or even twice a day. The period of postoperative rehabilitation is related to the loading of the operated limb after 4 - 6 months after the procedure. The limb should be loaded gradually by introducing tilting and learning to walk using orthopedic devices.

III.In the last stage of postoperative rehabilitation, the patient performs exercises as in previous periods, increasing the load and number of repetitions [7,8].

Methods of treatment

Conservative treatment for up to 6 months of age.

Treatment consists of slowly and gradually overcoming the resistance of shortened muscles adducting the thigh to its complete removal. To protect thigh cartilage and to maintain proper blood circulation in the thigh base it is necessary to gradually reduce the resistance. The essence of treatment is to center the femoral head to the bottom of the acetabulum. The methods of developmental treatment of hip dysplasia include the use of:

- Pavlik's harness,
- Frejka pillows,
- Koszla spacer.

If stabilization does not occur after applying the above methods, a closed reposition must be made.

Conservative treatment from 6 to 18 months of age.

From the age of 6 months, the treatment of dysplasia is a more difficult problem and it is very important to decide on the treatment method. In the case of hip joint instability symptoms, stabilizing treatment should be used. It must be preceded by an excerpt in this period of time in order to prevent sterile necrosis of the proximal femur. The most commonly used form of the extract in the group of young children is the over-head lift. Usually, after 4 - 6 weeks, the period of application of the statement ends, after demonstrating the possibility of performing closed hip replacement. The application of the extract in fixed sprains is risky, ineffective and carries a high percentage of repeated dislocations requiring reconstructive surgery.

If the hip joint dislocation is found in a child over 6 months of age, the chances for a conservative cure are small. In this situation, surgical treatment is recommended, i.e. an open joint reposition [1,3,7].

Summary

Every child in the first days of life should have a clinical examination in order to identify the developmental dysplasia of the hip joint as early as possible. In case of observing symptoms suggesting a defect, the diagnosis should be confirmed by ultrasound examination. Diagnosis of developmental dysplasia in the neonatal period results in a better prognosis for healing. The methods of treatment of hip dysplasia vary depending on the age of the child and the severity of the defect. The way to prevent before surgery is to recognize as early as possible and to start appropriate treatment and therapy. That is why it is very important to carry out the examination already in the first days of the child's life.

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