

THE ROLE OF NEONATOLOGISTS IN MONITORING THE EARLY PSYCHOMOTOR DEVELOPMENT OF CHILDREN

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Abstract: Birth trauma in a newborn is a particular problem in the daily professional work of neonatologists for several reasons.

On the one hand, it is necessary to react promptly in the delivery room and, above all, save the child's life, but at the same time with successful initial treatment, there is the problem of treating acute and then chronic consequences. On the other hand, there is a question mark in the minds of doctors about future psychomotor development and quality of life.

Birth trauma has a special significance in medical practice because it occurs at the very beginning of life, with a range of pathological conditions from a possible lethal outcome in the earliest period, through the occurrence of consequences that last throughout life until complete healing and orderly quality of life.

The prevalence of birth trauma in newborns is indicated by data from the literature (8 per 1000 births with a participation in mortality of 3.7 per 100,000 births). At the same time, there is a high frequency of treatment and hospitalization of these children, already during the first month of life, due to associated conditions such as jaundice, lack of weight gain due to feeding problems, convulsions and their equivalents, cyanosis crises, infections, etc. The increased need for hospital examination and treatment of newborns with birth trauma is shown by data from practice – in the Neonatology Section of the Health Centre of Vranje, where the birth trauma during the five-year period from 2016 to 2021 was among the three leading discharge diagnoses in as many as 43,8% patients.

Treatment and then monitoring the physical and psychomotor development of children with birth trauma in the first year of life is one of the tasks of a neonatologist because he/she gets acquainted with the problem at birth, monitors the child during the period of the most intense physical and psychomotor development, and in case of and in case of deviations with the consultation and involvement of a multidisciplinary team, he/she monitors the child during the two years of life in the term newborn or three years of life in the premature newborn.

In order to minimize the negative implications of neonatal trauma, multidisciplinary cooperation of highly educated and self-sacrificing staff of various specialties is necessary, because only proper perception of facts and their interpretation are the basis for reducing the incidence of birth trauma and mitigating the consequences that are manifested at a later age so that expensive and long-term medical treatment of uncertain outcome would not be necessary.

Keywords: Birth trauma, newborn, long-term medical treatment

1. INTRODUCTION

Birth trauma has a special significance in medical practice because it occurs at the very beginning of life, with a range of pathological conditions from a possible lethal outcome in the earliest period, through the occurrence of consequences that last throughout life until complete healing and orderly quality of life.

2. MATERIALS AND METHODS

The prevalence of birth trauma in newborns is indicated by data from the literature (8 per 1000 births with a participation in mortality of 3.7 per 100,000 births). At the same time, there is a high frequency of treatment and hospitalization of these children, already during the first month of life, due to associated conditions such as jaundice, lack of weight gain due to feeding problems, convulsions and their equivalents, cyanosis crises, infections, etc. The increased need for hospital examination and treatment of newborns with birth trauma is shown by data from practice – in the Neonatology Section of the Health Centre of Vranje, where the birth trauma during the five-year period from 2016 to 2021 was among the three leading discharge diagnoses in as many as 43,8% patients.

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3. RESULTS

MODEL OF MONITORING PHYSICAL AND PSYCHOMOTOR DEVELOPMENT IN CHILDREN WITH BIRTH TRAUMA

I NEONATAL PERIOD

A) The examination begins with an inspection, because very often only a careful look of an experienced doctor can reveal more than a classic routine examination.

While observing the newborn, we need to answer the questions: Is the child's appearance normal or do we notice any abnormalities? Kefalhaematoma. Is crying spontaneous and what is the character of crying? Can signs of distress be noticed? Is perioral and acrocyanosis or marbling of the skin observed? / vascular instability due to hypoxia. Are they present, to what extent and on what extent? hematoma sites? / traumatic cyanosis of the face, hematomas on the body and extremities.

B) Then the physical examination of the newborn begins, during which special attention is focused on:

1. the size and configuration of the skull
2. dimensions of the large fontanelle
3. the presence of unilateral or bilateral conjunctival hemorrhage
4. asymmetry of the face, especially the corners of the lips
5. torticollis of the neck which may be of traumatic origin
6. crepitation in the clavicle zone as a sign of bone fracture
7. arm position / paresis or paralysis pl. Brachialis and its type
8. position and asymmetry of the lower extremities, swelling, redness, soreness, especially during breech birth
9. swelling of the scrotum or the large lips accompanied by bruising, especially during breech birth

C) Neurological neonatological examination is of crucial importance because in case of deviation from normal it speaks in favor of the existence of consequences in the functioning of the central and/or peripheral nervous system and based on that, the anamnestic at-risk child is classified as symptomatically at-risk child that should be recorded in the risk register and to be under special supervision of psychomotor development during the first two years of life by a neonatologist, a pediatric neurologist, a physiatrist, a psychologist and if necessary an orthopaedist, a radiologist, a speech therapist, a neuropsychiatrist and doctors of all other profiles dealing with children's health care. Neurological neonatological examination includes - assessment of the state of consciousness, assessment of the state of tone, performance of atavistic reflexes.

D) radiological diagnosis of birth trauma of CNS

The most commonly used radiological diagnosis of CNS injury is ultrasound imaging of the brain. Imaging after 7 days of age is considered valid, since only at that age can false positives / pathological or negative / normal findings be ignored, which is directly related to postnatal developmental physiology of CNS. The necessity of ultrasound screening in the neonatal period is indicated by the data from the literature, as well as from our rich clinical practice, that most periventricular and intraventricular (PVK / IVK) hemorrhage are asymptomatic and that the diagnosis cannot be based on the clinical picture i.e. neonatological examination.

Acute events such as bleeding, cerebral edema, perinatal /and /or prenatal hypoxia of the brain parenchyma are most often diagnosed by ultrasound in newborns with birth trauma.

Magnetic resonance imaging and computed tomography are more commonly used in newborns if there are abnormal neurological signs in the presence of a normal ultrasound finding, although this is primarily the method of choice for diagnosing subdural or epidural hematoma.

INFANT PERIOD - clinical monitoring

During the period of infancy, it is necessary to do regular check-ups of these children at regular intervals that are determined in accordance with the "steps" of physiological psychomotor development, which are 6 weeks, 3,6,9,12 months.

In the examination, special attention shall be paid to: 1. physical development-progress in relation to childbirth anthropometric characteristics as well as in relation to the previous control examination, taking in detail the anamnesis regarding possible difficulties in feeding / underdeveloped or altered sucking and swallowing reflex that may indicate the development of consequences of childbirth trauma in terms of tone disorders.

2. motor development - in addition to the assessment of axial and segmental tone, it is very important to check whether the child has achieved rough "milestones" of development in accordance with the current age, such as tracking the view of the toy by 360 degrees, catching at the age of 3 months, switching objects from hand to hand at 5 months, turning from back to stomach at the age of 4.5 months, turning from stomach to back and initial independent sitting at 6 months, collision of objects at 7 months, four-legged position at 8 months, independent standing up at 10 months, walking at 12 months while fine motor skills are assessed especially in terms of the formation of small objects such as "tweezers" at 10 months or like pliers at 12 months.

3. mental development - special attention is paid to the articulation of voices in accordance with age, such as cooing at the age of 6 weeks, pronouncing double syllables at 4 months, the appearance of the first word at 6/7 months and the development of the vocabulary of 5 words used with meaning at the age of 12 months

4. social contact - in terms of calming down when looking at the parent in the first months of life to calming down on the voice of the parent for a period of 4 months, negative reaction to strange persons at the age of 8 months, respecting the ban from 12 months onwards.

If the necessity of examination in specialties of other profiles is not indicated earlier, it is necessary to refer a child with birth trauma to screen for deviations in psychomotor development:

A. to a pediatric neurologist and pediatric physiatrist at the age of 3 months

B. to a child psychologist at the age of 9 months

Radiological monitoring

Ultrasound radiography is important not only in the diagnosis of peri/intraventricular (PVK / IVK) hemorrhage, but also in its monitoring, where due to the organization and reaction of blood in the ventricles, the normal flow of cerebrospinal fluid can be prevented. Magnetic resonance imaging and CT are used to visualize the brain parenchyma and see what "follows" after perinatal asphyxia, especially in term newborns, ie the occurrence and further development of porencephalic cysts is monitored.

4. CONCLUSION

In order to minimize the negative implications of neonatal trauma, multidisciplinary cooperation of highly educated and self-sacrificing staff of various specialties is necessary, because only proper perception of facts and their interpretation are the basis for reducing the incidence of birth trauma and mitigating the consequences that are manifested at a later age so that expensive and long-term medical treatment of uncertain outcome would not be necessary.

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