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Therapeutic options at the Neonatal Pathology Ward

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Abstract

According to the World Health Organization, premature baby is a newborn baby that was born between 22nd and 37th week of pregnancy. The premature babies, due to immaturity of all systems, require special care from the whole medical personnel and holistic approach. The role of a physiotherapist at the Neonatal Pathology Ward is a very important aspect and care of a little patient should be adjusted individually. The most important assumptions of the methods in the care of premature babies at the intensive care unit include normalization of muscle tension, change of abnormal posture and motor patterns, as well as normal sensory experiences. Techniques and supports adjusted to physical and personality capabilities of a child are applied during therapy [1,2]. The Neonatal Pathology Ward is also a place for a clinical speech therapist who has a very important task in the care of a premature baby. A speech therapist who deals with therapy of a premature baby, checks anatomical conditions of the oral cavity, that is, tongue mobility, length of a frenulum, structure of the palate, and then develops a model of support individual for every patient [3]. Interdisciplinary work of the members of a medical team is necessary to provide modern and professional care for the patients.

Key words: premature baby, physiotherapist, neurodevelopmental therapy, speech therapist, clinical speech therapist, interdisciplinary work.

Introduction

Intensive progress of perinatal and intensive care enabled increase in the rate of survival of newborn babies who are extremely immature and suffer from serious conditions and congenital defects [4]. In Poland, current rate of incidence of premature childbirths in recent years fluctuates between 7,2% and 8,4% [5]. According to the World Health Organization, premature baby is a newborn baby that was born between 22nd and 37th week of pregnancy. Prematurity is divided into three groups. Very extreme prematurity refers to children that were born between 22nd and 28th week of pregnancy, extreme prematurity refers to children that were born between 28th and 32nd week of pregnancy and late prematurity refers to children that were born between 32nd and 37th week of pregnancy [6].

Premature childbirth is a result of interactions of many medical and social factors. Five main large groups of clinical causes of prematurity can be distinguished: intrauterine infections and premature running of amniotic fluid, incompetence of cervix uteri, disorder of intrauterine development of foetus, placenta abnormalities and bleeding from the genital tracts, as well as multiple pregnancy [1]. One of the strongest predictive factors of the risk of premature childbirth is previous premature childbirth [7]. Extremely premature and seriously ill newborn babies need to be hospitalized at the neonatal intensive care unit and they are very huge challenge for modern medicine.

The duration of hospitalization of newborn babies that were born prematurely is very diverse and largely depends on the degree of immaturity of a child and associated incidence rate, of which values are inversely proportional [8]. One of the most important goals of modern neonatology is prevention of complications connected with prematurity. Specialists in various fields are the parts of a therapeutic team that needs to care of a premature baby. The midwives and nurses play an important role, they monitor vital signs of newborn babies 24 hours a day and they are able to observe any abnormalities [1]. A neonatologist selects a method of treatment on the basis of physical examination, obtained information, results of laboratory and imaging tests [1]. A physiotherapist who assists in psychomotor development of a patient, applying wide prevention of development disorders, as well as clinical speech therapist are necessary in the care of a newborn baby. The premature babies, due to immaturity of all systems require special care from the whole medical personnel and holistic approach.

The role of a physiotherapist at the Neonatal Pathology Ward

The role of a physiotherapist at the Neonatal Pathology Ward is a very important aspect and care of a little patient should be adjusted individually. Extreme and very extreme premature babies have low muscle tension, it has impact on child not being able to maintain optimal body posture for development of normal motor patterns [1]. An important element that will enable later to shape normal neurodevelopmental patterns of a child is, among others, the way of putting a child in an incubator. In order to keep correct position of a child, the specialist height-adjusted crescent shaped pillows are used [1]. Correct positioning ensures in newborn babies that were born prematurely correct distribution of muscle tension during sleep and spontaneous activity of a child and has

positive impact on development of respiratory competences, as well as minimizes the risk of occurrence of bedsores [9, 10]. Correct positioning by all members of a therapeutic team is an effective prevention of formation of abnormal movement and posture mechanisms in premature babies [1].

Due to immaturity of respiratory system, many patients staying at the neonatal intensive care unit often need breathing support through application of mechanical ventilation or device generating constant positive pressure in the respiratory tracts, which keeps respiratory tracts relaxed for the whole breathing cycle [11,12]. A method supporting clearance of respiratory tracts from discharge is respiratory kinesiotherapy (accélération du flux expiratoire – AFE). AFE method is a drainage using the growth of air flow in the respiratory tracts during exhalation that facilitates elimination of discharge from respiratory tracts, improving conditions of gas exchange [7].

Early support of development of motor competences is applied in premature babies staying at the intensive care unit [8]. The patients with diagnosed abnormal global motor patterns must undergo therapy to curb pathological motor patterns. Therapy is applied at physician's request if the clinical state of a child allows to do it. Two neurodevelopmental therapies applied at the Neonatal Pathology Ward can be distinguished and they are individually selected to the needs of a child. Vojta and NDT-Bobath therapy are distinguished. The most important assumptions of the methods include normalization of muscle tension, change of abnormal posture and motor patterns, as well as normal sensory experiences. Techniques and supports adjusted to physical and personality capabilities of a child are applied during therapy [1,12]. An obligation of a therapist caring of little patient is educating parents so as to allow them to continue any actions necessary for proper development of their child.

The role of a clinical speech therapist at the Neonatal Pathology Ward

A task of a clinical speech therapist in the care of a premature baby is very important.

Caring of a patient at the Neonatal Pathology Ward, we must remember that assessment of such patient and its capabilities is completely different than term infant. During all examinations, also in speech-therapy examination, we should remember to correct the age of a child.

The beginning of motor development of speech act is connected with prenatal period. In this period, not only organic base of speech functions is shaped, but also occurs functional correlation of specific receptors taking part in the function of hearing and speech, as well as ingestion of food and liquids [12].

A speech therapist who deals with therapy of a premature baby, checks anatomical conditions of the oral cavity, that is, tongue mobility, length of a frenulum, structure of the palate, etc. [3].

After making an assessment, it is necessary to check the reflexes of facial and oral sphere. Selecting appropriate therapy prevents development of many pathological changes, but also helps shaping proper habits. In order to improve tension of facial muscles and strengthen the muscles of lips, tongue and soft palate, the exercises in the neuromotor area are applied [13]. Inborn, physiological unconditional reflexes occurring in a newborn baby and infant are the basis of development of elementary motor patterns conditioning the development of articulation, including deglutition reflex,

reflex of sticking out tongue, suction reflex, biting reflex, opening mouth, lip reflex, bringing up reflex and mandibular reflex [3] .

Not all reflexes are shaped in premature babies and the task of a speech therapist / clinical speech therapist is triggering them off at the right moment [3]. Early intervention should be introduced at physician's request at the right moment.

Feeding is a very important aspect. The premature babies that were born after 28th week of pregnancy, who are not on a respirator, are usually fed using a tube in the beginning and sometimes fed parenterally [3]. A method feeding of a premature baby depends on its maturity. Food must be properly ingested in the oral cavity through suction in newborn babies [3]. Normal and tight shrinkage of lips and formation on pressure in the oral cavity through the change of position of a tongue, especially by moving it back, as well as mechanism of palatopharyngeal occlusion take part in this activity [3]. A speech therapist / clinical speech therapist pays attention during feeding to technique, positions and way of breathing, as well as saturation and its drops, adjusting an ideal way of feeding for every patient.

Depending on the condition of a child, the exercises supporting the development of a newborn baby and infant can be applied. The cooperation between medical personnel and parents, showing normal patterns of feeding, feeding and belching positions are very important. An additional aspect is proper individual selection of a dummy and bottle.

Conclusions

Interdisciplinary work of the members of a medical team is necessary to provide modern and professional care for the patients. The combination of skills, experience and knowledge of the specialists in various fields allows to get high quality of provided medical services. Every member of a neonatal intensive care team plays a unique for its profession role, adjusted to various needs of the patients, and work of physiotherapists, midwives and clinical speech therapists is an integral element of therapy of little patients who need intensive medical care [5].

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