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Specialist Speech Therapy in Poland in Children with Feeding and Swallowing Disorders

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SUMMARY

Progress in medical care witnessed nowadays has resulted in the increase of the survival rate of infants affected or at risk of some psychomotor development disorders. High psychomotor risk may be associated with perinatal risk factors, preterm delivery as well as hereditary diseases. Each child with the so-called positive perinatal family history may experience difficulty feeding and swallowing. Therefore, diagnosing feeding and swallowing disorders, known as dysphagia, by a team of specialists including a neonatologist, paediatrician, gastroenterologist, laryngologist, psychologist and speech pathologist, has become an urgent need.

The aim of this article is to acquaint the readers with the role of the specialist in speech pathology in the improvement of the feeding and swallowing skills in children affected by certain psychomotor disorders, as well as present current developments in the specialist speech care available in hospitals and early medical intervention centres in Poland.

Key words: **early intervention, dysphagia, speech therapy, feeding disorders, suck-swallow-respiration**

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Feeding and swallowing disorders presented in this article predominantly affect infants and small children who may suffer from psychomotor dysfunctions and thus require being fed by their parents, caregivers or medical personnel. Such children either totally refuse feeding and swallowing or have major problems mastering these skills. Feeding and swallowing disorders may occur at the child's early development stage and they are not to be associated with such eating disorders like anorexia nervosa or bulimia nervosa. These latter disorders result from a conscious decision not to eat or limit daily portions by patients otherwise physically and neurologically healthy who have developed regular feeding, swallowing, digestion and defecating skills. A child's discharge from hospital is conditional upon his or her acquiring feeding independence, i.e. learning the skills of the oral phase of ingestion (mastication, tongue mobility, and lip closure). Difficulties related to natural feeding of infants have become a great concern of the Polish neonatologists, paediatricians, and even more frequently speech pathologists employed in hospitals and early intervention centres (1, 2). However, the Polish health care centres lack specialist knowledge required for diagnosing and further support after feeding and swallowing disorders in children have been confirmed. As a result, medical centres having been aware of the quality of medical care provided in this problem, have ordered specialist speech tests to be performed. Yet, there is a great information gap between our centres and the centres in other countries, including the United States. This is a result of no tests or analyses being carried out for the past 40 years, either on test animals or infants and children (3, 4). Still, thanks to the recent observations in the group of the youngest patients, some subtle variances in acquiring feeding skills already in the mother's womb as well as outside it during the first 24 months of life were spotted and described.

It was proved that in the 11-16 week of the prenatal life the sucking reflex develops, whereas coordination between sucking and swallowing develops in the 32-34 week of gestation age (5). The latest observations related to feeding an infant, his or her skills of ingestion and swallowing food are of the greatest significance for the Clinical Practice in Speech-Language Pathology. Feeding and swallowing skills development proved conditional upon constantly changing capability of sucking, swallowing and breathing, as well as the capability of coordination of the three aforementioned skills, as well as highly complex interactions between them, being the aggregate of genetic conditions, homeostatic functions of the nervous and hormonal systems, activity of the sense organs and centres responsible for appetite and satiation, followed by the influence of a few environmental factors: cultural, social and family-related (6,7) ones.

At present, it is being accepted that oral feeding may be introduced in infants cardiovascularly and respiratory stable, i.e. in the 37th week of gestational age, counting from the day of the last menses. Only then, according to the neurological development phase, is an infant able to coordinate the skills of sucking, swallowing and breathing (8).

Following the knowledge and experience of the American speech pathologists in this field, we can assume that readiness to ingest food does not only depend on the sucking skills, but the skills of coordinating sucking, swallowing and breathing. Apart from that, the effectiveness of feeding will also largely depend on the behavioural pattern of an infant, his or her organisation as well as the immediate infant's environment.

As a result, the switch from feeding with the use of a probe to oral feeding will require taking into consideration all these factors (7, 9).

In the group of preterm babies, before taking any decisions related to whether stop feeding with the use of a probe or not, Polish clinicists try to find out whether the baby is ready to accept the food by mouth, based on certain indications (signs). However, due to the fact that the tests were commenced not long before, and the databases are still rather poor, which is followed by the general lack of nutrition educational programmes in the population of infants, these indications have not been developed satisfactorily yet.

According to the information issued by the American Speech–Language–Hearing Association no support on the part of the speech pathologist, at the same time being a nutritionist (feeding specialist) while an infant with a positive history is being hospitalized, may lead to long-term difficulties related to feeding disorders in the further months of his or her life. This is because early improper food intake scheme in an infant may indicate subtle neurological disorders which might remain unrevealed until childhood. For that reason, the identification of a dysfunctional sucking schemes in infancy is so important to correct further developmental consequences (2).

The most frequent problem related to infant feeding, according to both medical personnel and parents, is a neurological immaturity and body motor dysfunctions. Dysfunctions include oral cavity conditions resulting from low or decreased muscle tone and the so-called reluctance for food intake, or oral aversion (10). A large number of infants staying at the Intensive Care Units and discharged home upon a few months of hospitalization who are stable circulatory and respiratory do suffer from sensory oversensitivity which impairs a normal development of feeding reflexes (sucking, moving of food into the throat i.e. food transportation and swallowing) (7). Infants also present a disorganized scheme of food intake in the sense of motor abilities. Both motor and sensor dysfunctions and disorders related to eating (food intake) and swallowing are the manifestations of neurological immaturity as well as a long-term and intense hospitalization, structural disorders and numerous procedures performed to cure an improperly shaped intestinal tract, respiratory disorders, circu-

latory disorders and digestive tract diseases. There are many more causes of feeding disorders or feeding difficulties. Medical personnel, including a speech pathologist, is focused on diagnosing feeding dysfunctions, and troubleshooting, i.e. devising feeding rectifying programs (11, 12).

Feeding and swallowing diagnostic programs in little children are not easy to prepare, however detailed history and in-depth observation frequently lead to proper diagnosis which will explain this sensory oversensitivity and address it, among others, by taking into consideration improper motor functions of food intake. Another important diagnostic element is the cooperation between a speech pathologist and a team of medical professionals, including a neonatologist, paediatrician, gastroenterologist, laryngologist, physiopathologist and last but not least a psychologist. The underlying idea of a team work in addressing this condition is a complete and comprehensive diagnostic approach to feeding disorders, and on the other hand, devising a rectifying program which will prevent development or enhancement of oral and facial deficits, devising a complex, holistic approach to treatment and finally such a therapy of an infant with feeding and swallowing disorders which will be successful (11).

In some European countries as well as in the United States there are two therapeutic approaches aiming to support a baby patient by a speech pathologist. The first approach, defined as a non-invasive one, was worked out and is being propagated in the United States. According to this method, supporting the babies with feeding disorders involves choosing alternative food giving methods at very strictly defined feeding times in order to be able to switch to natural feeding when the child's swallowing abilities have improved. Subsequently, the child is supported behaviourally by organising his or her environment, introducing calming techniques based on subjective perceptions (sensations) of the child being fed. Moreover, the techniques of proper eating and swallowing are enhanced by breathing exercises, monitoring of the feeding time, regulation of the sucking movements and breaks between sucking during one minute, proper positioning, that is placing an infant in a proper position depending on his or her coordination skills, as well as making use of primary movements in favour of an infant so that he or she did not become a victim of a feeding process but its aware participant (3, 4, 11).

The other approach involving invasive elements was also developed in the United States, but became much more popular in Europe, especially in Germany and Holland. In this approach, speech pathologists working with children suffering from dysphagia are supported by specialist rehabilitation nurses and doctors. This interventional treatment is based on the early and complex handling during the first three years of the child's life, followed by speech therapists' rehabilitation. This three-year time is particularly important to support the child's development due to the fact that the effectiveness of this therapy and rehabilitation is conditional upon the plasticity of the Central Nervous System.

Thanks to the early orofacial stimulation the correction of sucking, chewing, swallowing and transportation movements is achieved, whereas the surviving primary reflexes are extinguished and then subsequently overtaken by voluntary actions (13).

In the Polish diagnostics and speech therapy, this second approach, including invasive elements, is much more prevailing. An infant with feeding and swallowing disorders is first assessed for his or her psychokinetic abilities, with greater attention paid to motor abilities allowing to ingest food (developed skills like opening the mouth, closing the mouth, sucking, chewing, transporting food and swallowing), whereas sound articulation abilities are assessed later, as it is believed that this ability is secondary to kinetic or motor abilities.

Therefore, a Polish speech pathologist performing an early assessment of a child will first of all collect information relating to the conditions influencing the development of the earliest functions of the articulation apparatus, i.e. the feeding functions. So much so the speech pathologist in Poland will be interested in the anatomical structures and their relations in the face and oral cavity and the level of functioning of the articulation apparatus. This latter will include the assessment of reflexes, important from the point of view of speech development, like the sucking reflex, swallowing reflex, opening mouth and lips, sticking out the tongue**,** (the rooting reflex), feeding methods and plausible problems in this respect, the method of breathing, development of the senses, in particular hearing, and speech development phase as well as their timing (these are commonly jointly called as pre-verbal stages) (13).

On the basis of such diagnostic process, proceeded by taking a good medical and environmental history, a therapeutic program is devised, with the stress put to the rehabilitation process.

Revealing feeding abilities in Poland is based upon two speech therapy rehabilitation methods: NDT - Bo-bath, and Oro-Facial Regulation Therapy by R. Castillo Morales. Both methods were adapted to the patient's developmental age and are practiced in the major Polish day care rehabilitation centres.

Neuro-Developmental Treatment (NDT) is an advanced therapeutic approach practice which was developed in the 40's by the couple Bertha and Karel Bobath (a neurologist). Their rehabilitation concept was used to effectively rehabilitate children with motor control and movement disorders related to Central Nervous System conditions. Mary Quinton and Elizabeth Kőng continued this method and developmental diagnostics for the purposes of early intervention in infants at high risk of developmental motor disorders. For many years, this method has been one of the basic treatment methods. Although the underlying concept has not changed for many years, it is the perception of the method that

has evolved significantly, respectively with the current stage of medical knowledge.

NDT - Bobath Treatment offers a comprehensive diagnostic and therapeutic procedure. Cooperation of the therapeutic team including, apart from medical personnel, also the parents and caregivers allows to continually improve the motor standards and optimise the developmental motor disorders during feeding and swallowing.

Castillo Morales' comprehensive, neurophysiologically-oriented therapeutic concept for children called an Orofacial Regulation Therapy has recently become very popular in Poland. Though its immense popularity cannot be credited to its effectiveness but rather to the lack of any other alternative therapeutic methods available in Poland.

Therapeutic methods of Rodolf Castillo Morales, who was a rehabilitation doctor himself, is oriented to the normal sensory-motor development of the child. In this method, stimulation zones all over the body and oral and facial zones are relieved via treatment techniques involving, e.g., tension, pressure and vibration, and visual-spatial orientation, which is used as a comportment stabilizer. As a result, both children and adults with genetic and neurological disorders become more alert, responsive and motivated. They process signals in their environment better, become more capable of communicating and demonstrate an increased willingness. In Europe, this method has been developing since 1979, whereas in Poland only for the past 10 years.

Both methods, based on the mutual concept of supporting an infant - require from a speech pathologist a specialist knowledge and rehabilitation of the whole body. It is true that both methods assume work with the whole body. Therefore, specialist knowledge of functional anatomy, including work of the muscle groups, their functions, arrangement or distribution of nerves, innervations of motor mechanisms is required. The cranium in the junction with the spine, lower jaw (mandible) and the tongue bone (hyoid bone or lingual bone) with the shoulder girdle are the most important. The aim of the treatment in both approaches is acquiring a correct standard movement and then fixing it in the child. In work with a child suffering from dysphagia, the choice of the treatment method, creating and supporting feeding ability will be of great importance due to the fact that each infant is different, with a different family and medical history and so much so with a different "background", too (6, 14).

Still, it is not the choice of the treatment method that is the most important action taken by the speech pathologist in relation to infants affected or endangered by delayed psychomotor development. First of all, the therapeutic care in infants suffering from dysphagia will mean making an accurate diagnosis of the child's feeding capabilities and subsequent enhanced diagnosis based on the tests of the central nervous system, pulmonary, cardiovascular and digestive systems (5, 10, 11).

Standard medical care of the children endangered by improper psychomotor development in Poland already includes the tests mentioned above. However, Polish speech pathologists are not able to use medical information obtained from such medical tests and contained in the patient's chart. Thus, they are unable to comprehensively evaluate the infant's feeding skills. It is true that speech pathologists use their own diagnostic tools, though not based on the objective medical tests, and carry out successful speech therapy. Unfortunately, too many children with feeding disorders suffer from untreatable neurological or anatomical dysfunctions which make oral feeding very hard or even dangerous. Sometimes, such children due to these dysfunctions will never be able to acquire feeding skills to ensure proper nutrition (2, 3, 6, 12).

Concluding, the role of a speech pathologist in the rehabilitation process aimed to acquire feeding and swallowing skills by children endangered by improper psychomotor development should be revised. Speech pathologists should not only provide speech rehabilitation as such, which is being provided in many hospitals and early intervention centres in Poland nowadays, but also use medical tools to enhance their diagnostic awareness and responsibility.

This new holistic approach may allow to effectively select a supporting method or speech therapy.

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SPECIJALIZOVANA TERAPIJA GOVORA U POLJSKOJ KOD DECE SA PROBLEMIMA ISHRANE I GUTANJA

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Sažetak

Današnji napredak u pružanju medicinske nege doveo je do povećanja stope preživljavanja beba kod kojih već postoje ili su pod rizikom od razvoja psihomotornih poremećaja. Visok psihomotorni rizik može se dovesti u vezu sa perinatalnim faktorima rizika, preranim porođajem, kao i naslednim bolestima. Svako dete sa takozvanom pozitivnom perinatalnom porodičnom istorijom može da ima probleme sa ishranom i gutanjem. Zbog toga je dijagnostikovanje poremaćaja ishrane i gutanja, poznatih kao disfagija, od strane tima specijalista, uključujući i neonatologa, pedijatra, gastroenterologa, laringologa, psihologa i logopeda, postalo urgentno.

Cilj ovog rada bio je da upoznamo čitaoce sa ulogom specijaliste za patologiju govora u poboljšanju ishrane i mogućnosti gutanja kod dece sa izvesnim psihomotornim poremećajima, kao i sa aktuelnim dostignućima u pružanje specijalizovane nege u bolnicama i centrima za ranu intervenciju u Poljskoj.

Ključne reči: **rana intervencija, disfagija, terapija govora, poremećaji u ishrani, sisanje-gutanje-respiracija**