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20

RESEARCH PROBLEMS IN THE DIAGNOSIS AND CORRECTION OF SPEECH DISORDERS IN CHILDREN WITH RHINORRHEA

PROBLEMAS DE INVESTIGACIÓN EN EL DIAGNÓSTICO Y CORRECCIÓN DE TRASTORNOS DEL HABLA EN NIÑOS CON RINORREA

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ABSTRACT

Rhinorrhea is a common manifestation of different ailments and although in many cases it does not require medical treatment in the case of causing speech disorders, it does have to be addressed by a specialist. For this reason, the following work discusses different problems in the diagnosis and correction of speech in children who suffer from this condition. The main research method used was document analysis, so the investigation has a qualitative nature. In the paper, different methods and exercises recommended by specialists are exposed, which allow an effective treatment. In this way, it contributes to improving the performance of professionals in this area whose work is especially difficult and complex.

Keywords:

Speech therapy diagnostics, verbal training, speech disorders.

RESUMEN

La rinorrea es una manifestación común de diferentes padecimientos y aunque en muchos casos esta no requiere tratamiento médico en el caso de provocar desórdenes en el habla sí tiene que ser abordada por un especialista. Por ello, en el siguiente trabajo se discuten diferentes problemas en el diagnóstico y corrección del habla en niños que sufren esta afección. El principal método de investigación utilizado fue el análisis de documentos por lo que la investigación tiene una naturaleza cualitativa. En el trabajo se exponen diferentes métodos y ejercicios recomendados por especialistas los que permiten un efectivo tratamiento. De esta manera se contribuye a mejorar el desempeño de los profesionales de esta área cuyo trabajo es especialmente difícil y complejo.

Palabras clave:

Diagnóstico de terapia del habla, entrenamiento verbal, trastornos del habla.

INTRODUCTION

According to Bauman-Waengler & Garcia (2020), in a recent American Speech-Language-Hearing Association (ASHA) survey on Speech-Language Pathologies (SLP) caseloads in the schools, over 90% of clinicians reported that they work with children with articulation/ phonological disorders. Because of that, therapists frequently are faced with questions such as: What options are available for evidence based treatment of speech sound disorders? How do I implement the various methods? What types of analyses should I conduct prior to choosing a therapy approach? How do I write appropriate intervention goals and gather necessary data to support clinical decision making? Therefore, the study of the problems in the diagnosis as well as the correction of the speech disorders is of significant importance for the academic community.

Speech disorders may be understood by any disruption to the spoken medium of language, whether this disruption is developmental or acquired, and irrespective of any concomitant disruption to language (Ball, 2016). According to Van Riper (1939): " ***Speech is defective when it deviates so far from the speech of other people in the group that it calls attention to itself, interferes with communication, or causes its possessor to be maladjusted to his environment***" (p. 51). Speech disorders can have a known or an unknown cause. Among the known causes can be organic problems, some genetic such as cleft palate and other craniofacial disturbances, and others acquired such as glossectomy or laryngectomy. Related to these are neurogenic disorders such as dysarthria and apraxia of speech and some forms of aphasia. On the other hand, perhaps more intriguing are speech disorders of no known etiology: often termed 'functional' disorders ('functional' in that the disorder disrupts the function of the medium, in this case speech) (Ball, 2016).

Bauman-Waengler & Garcia (2020), highlight that the two most common subtypes of speech sound disorders are articulation disorders and phonological disorders. The term articulation disorder has been used for decades to refer to an inability to physically produce speech sounds. In his classic text Speech Correction, Van Riper (1939), listed articulation disorders as one of the subcategories of speech disorders. It was characterized by substitutions, omissions, additions and/or distortions of speech sounds. Articulation disorders originally reflected a client's inability to perceive and/or discriminate specific sounds, and to produce them motorically. They were considered a motor production problem in which the individual had to relearn the positioning and movements of the articulators. On the other hand, phonological disorders are language-based, with the core difficulty being the language-specific function of phonemes. They result from impairments in the phonological representation of speech sounds and speech segments—the system that generates and uses phonemes and phoneme rules and patterns within the context of spoken language.

Regardless of the type or etiology of a speech disorder, there are different methods to approach its treatment, for which different intervention approaches may be taken. Nevertheless, as pointed out by Brinton & Fujiki (2010), regardless of the strategy to follow the primary purpose of speech and language intervention is to improve communication in a way that enhances an individual's ability and/or opportunities to participate fully in the life events that are most important to that person's quality of life.

One of the causes that recurrently influence speech disorder due to articulation factors is rhinorrhea. According to Turner (2012), rhinorrhea is primarily a result of increased vascular permeability with leakage of serum into the nasal secretions. Although treatment for rhinorrhea is not necessary in most cases, it is important when it affects the quality of speech. Taking this into account, the objective of this research is to analyze the problems in the speech correction in children with rhinorrhea. For this purpose, document analysis was used as the main research method, so the research is qualitative.

DEVELOPMENT

As pointed out by Roth & Worthington (2021), speech and language intervention is a dynamic process that follows a systematic progression. It begins with the diagnosis of a communication disorder and is followed by the selection of appropriate therapy targets. Training procedures are then implemented to facilitate the acquisition of the target behaviors. The intervention process is complete when mastery of these behaviors is achieved. Usually, periodic follow-up is performed to monitor retention and stability of the newly acquired behaviors and throughout all stages of therapy, advocacy is an important role for the speech-language pathologist.

Rhinolaryngological conditions determines the activity or inactivity of the members of the articular apparatus of children, which can influence to carry out speech-corrective work in the right direction. It is important to carefully study the clinical and psychological-pedagogical data in order to determine the characteristics of speech defects, the correct organization of the complex effect and ways to improve the correctional work with children with rhinorrhea. Also it is important to collect anamnestic data for proper speech therapy. Based on this information, the correct

direction of speech therapy can be selected (Ippolitova, 1983).

Correctional work should be carried out in stages and consist of various exercises. At the initial stage, it is necessary to perform work on the activation of the muscles of the soft palate and esophagus. Various exercises are recommended to stimulate increased elasticity and plasticity of the tissues of the soft palate, as well as activation of the posterior wall of the esophagus. Corrective work consists of developing the skills of unconditional self-acceptance, a positive "I", which may be essential in children with Attention Deficit Hyperactivity Disorder (ADHD). Some activities may include the improvement of their perception of the connection between emotions and impulses of the body and personal needs, improving the chain of self-regulation, enrichment of the emotional repertoire and the development of positive thinking, self-confidence and self-confidence in the future. The effectiveness of correctional work is ensured through the use of therapeutic methods that combine the idea of the unity of the human body, emotions and cognition. Elements of psychodrama, dance, and rational therapy can also be used.

Speech therapy begins with an examination of the structure and movement of the articular apparatus. During a speech therapy examination, the structure and mobility of the articular apparatus of children with rhinolaryngitis are investigated in all its subtleties. Then the pronunciation status is checked very carefully. In addition, the state of phonemic perception is also checked. In other words, it is expedient to conduct a speech therapy examination at the following stages (Ippolitova, 1983).

It is important to observe the muscles during facial expressions when the child is at rest. Important aspects are:

- Transparency of nasolabial folds, their symmetry.
- The mouth is open or closed.
- There is no leakage of saliva.
- The nature of labial lines and their compression density.
- The presence or absence of violent movements of the muscles of the face (hyperkinesis).
- Then, the organs of the articular apparatus are examined, during which it is important to characterize the structural features and anatomical defects of the following organs: lips, tongue, teeth, soft palate, jaws, and hard palate. Some important points to consider are:
- Lips (thick, short, cleft upper lip, postoperative scars, normal).
- Teeth (rare, crooked, small, redundant, arches outside the jaw, rotten, underdeveloped, normal).
- Bite (open front, open side, normal).
- The structure of the jaw (offspring, prognosis, norm).
- Language (thick, straightened, tense, small, long, narrow, normal).
- Sublingual curtain (short, tight, excess, normal).
- Small language: short, divided into two parts, motionlessly hanging from the midline, pushed aside.
- Desna (high, extremely narrow, flat, low, cleft of the hard palate, cleft of the soft palate, cleft of the alveolar ridge, cleft of the bag, norm).

On the other hand the study of pronunciation should take into account two aspects which, although different, are closely related to each other:

1. Articulation which involves the activities of the articulation organs in the process of determining and pronouncing the features of the formation of speech sounds.
2. Phonology which is designed to determine how the child distinguishes between a system of speech sounds (phonemes) in different phonetic conditions. These two aspects are

The following diagnostic methods may be used to study the structure and movement of the articular apparatus. Method one is designed to check the movement of the lips according to oral instructions which are carried out after completion of the instructions. All tasks should be performed with repetition of the required action. The contents of the task are:

a. Tighten lips together.
b. Circle the lips, as when pronouncing the sound "O" - to maintain position.
c. Expand the lips and maintain position, as when pronouncing the sound "U"
d. Straighten the "hose" (pull and close your lips).
e. Pull your lips as a "smile" (teeth are not visible) and maintain position.
f. Raise the upper lip, in order to the upper teeth are visible.
g. Move the lower lip to make lower teeth visible.
h. Simultaneously raise the upper lip and lower the lower lip.
i. Do numerous repetitions of the sounds of the lips b-b-b, p-p-p.

Method two may be used to study the dynamic organization of articular movements. The contents of the tasks for this are:

a. Show teeth.

b. Stick out your tongue and then open your mouth wide.

Table 1 shows the results of the application of method one in five patients, which serves from a methodological and pedagogical point of view to draw the following conclusions: the execution is correct, the range of motion is not large, and there are presence of joint action, muscle tension, weakening of movements, left sides of the lips but also unilateral lip closure.

Table 1. Example of application of method one.

Task	Nature of performance				
	Anar	Medine	Goycək	Kamal	Roya
a)	+	+	+	+	+
b)	+	+	_	_	_
c)	+	+	_	_	+
d)	+	+	+	+	+
e)	+	+	+	+	+
f)	_	_	_	_	_
g)	_	_	_	_	_
h)	_	_	_	_	_
i)	+	+	+	+	+

The use of these methods may help to identify if: performance of work is correct, there is a search for the state of articulation when replacing one movement with another, there is lack of differentiation of actions, there is violation of the flow of movements, there is tension of the tongue (not in a calm state, the movement of the tongue is not taken) and there is lack of transition from one articulation state to another, from one phoneme to another and from one sound sequence to another.

After obtaining the results of a speech therapy examination of children with rhinorrhea, it can be determine the correct direction to follow. Correctional work should be carried out in stages and consist of various exercises. At the initial stage, work should be done to activate the soft palate and muscles of the esophagus. This help to stimulate increased elasticity and plasticity of soft palate tissues, the activation of the posterior wall of the esophagus, as well as adequate contact of the soft palate with esophageal sphincters (Vansovskaya, 2000). In order to accomplish this the following exercises are recommended (Vasilieva, 2007):

1. Create an imitation of a “bloated balloon”, “show the throat to the doctor” when swallowing.
2. Do intentional cough with active breathing and pronunciation of sounds I, E, A, O, U, I (near the lower teeth of the tongue).
3. Yawn pronouncing the vowels I, E, A, U, I.
4. Gargle with the head back.
5. Do arbitrary movement of the soft palate up and down on its surface as instructed and its tension in the open position of the mouth (control of movements in front of the mirror).
6. Breath through the mouth and breathing through the mouth with yawning (soft palate tense).
7. Sing a melody in the upper register.
8. Do simultaneous breathing through the mouth and nose.
9. Imitate vomiting with pressure on the diaphragm and with a slight cough.
10. Pronounce combinations in one impulse to stimulate the lateral and posterior muscles of the esophagus.
11. Push of air between the lips close to each other with the tension of the pharynx and abdominal muscles.

At the second stage, systematic work should be carried out to activate the motor skills of articulation (Vansovskaya, 2000). For articulation, each position movement is processed accurately, without mirror control and in accordance with a specific rhythm. Some tasks to perform for the lower jaw are:

1. Pronounce sound la-la-la, ala-ala-ala with the mouth half-open -and wide open.
2. Do arbitrary movements of the lower jaw to the right and left.
3. Imitate the movements of chewing, during which there is an energetic contraction of the muscles of the larynx, pharynx, soft palate, tongue and lips
4. Move the lower jaw forward and at the same time “scratch” the upper lip with the lower teeth, release it towards the lower teeth and slide it back, “scratching” the lower lip with the upper teeth.

Also when lowering the jaw, place your hand on the jaw joints to visually show that the lower jaw and chewing muscles are relaxed. Then, when pronouncing vowels, it is necessary to add a slightly convex movement of the lower jaw: I, E, I. Presenting the jaw slightly lower and slightly forward leads to a wider and clearer pronunciation of sounds through oral resonance. It is known that during speech, the oral cavity and esophagus are inversely related to each other: the wider the oral cavity during speech, the narrower the esophagus.The following exercises for

the lips are also recommended so that the lip movements are as comfortable and active as possible:

1. Lip vibration ("pprrrr" as a driver).
2. Lift of the lower and upper lip (alternately and simultaneously), pronunciation
3. Squeeze and open the jaw to extend the lips, like a tube, and give them the shape of a "circle".
4. Move lips around the edges.
5. Press the upper lip to the lower lip.
6. Hold a wooden spoon with your lips, or hold small tubes with them.
7. Say "mmm" mmm "mmm" by pulling your lips and gritting your teeth.
8. Imitate the brushing with sharp pressure on the lips, followed by relaxation and breathing.
9. Open the lips like a wide hole, and then form a gap with a whistle.
10. Absorb air pushing lips forward with gritted teeth.
11. Do suction movements with the lips to the right and left.
12. Do active lips movements with pronunciation.
13. Lower the lower jaw up and down with lips tightly.
14. Move the tightly pressed lips to the right and left in an attempt to move them up and down with sharp movements.

In the case the patient suffer rhinorrhea due to a surgical procedure like open rhinoplasty, it is necessary to massage the upper lip after surgery. The cicatricial upper lip is massaged from the nose to the edges of the upper lip with the last joint of the 2nd and 3rd fingers of both hands, and the scar itself is slightly tightened. The movements are: rubbing, rubbing, crushing and vibration for 2 minutes each.

On the other hand, in the correction of physiological respiration, special attention is paid to the formation of respiration in the training system (Vansovskaya, 2000). Children are told that for the formation of speech, they need to have well-developed respiratory muscles for the proper functioning of the respiratory system, and the proposed breathing exercises help increase lung capacity, mobility of the abdominal and chest muscles, diaphragm, and increase the intensity and length of breathing through the mouth.

First of all, it is advisable to work on diaphragmatic breathing, which is considered deeper, stronger, which is controlled by prolonged breathing through the mouth and weakening the respiratory rate. The latter, in turn, reduces the speed of the released air, thereby reducing the leakage of breathing through the nose, providing relaxation of the tongue and flattening of the back of the tongue. Diaphragmatic breathing is performed first in a horizontal and later in half-sitting position. During breathing, the upper abdomen and lower chest are slightly elevated, and during shortness of breath it is pulled back to rest. Then a break is made, as a result of which the patients rest and relaxes the muscles of the sky and pharynx, and after a while the task is repeated. The movement of the abdominal wall and lower chest is slightly controlled by the flexor muscles of the hand so that the shoulders do not rise. Thus, not only stretching develops, but also parasitic breathing (the latter helps to more clearly sense the movement of the diaphragm and the abdominal wall). It is known that the diaphragm, esophagus and all other resonators are equipped with a single control system that allows you to stimulate various organs of the speech apparatus using gymnastics (Vansovskaya, 2000).

Soft palate persists during breathing exercises. Children learn to use airflow rationally (the same pressure on the diaphragm), maintaining equal activity of expiratory muscles. Therefore, the first steps in the transition from playing material to speech material are the development of calm, light and directed breathing through the mouth against the background of a weakened air flow from the lungs and deliberate yawning and support in the lower chest. This coordination of movements is gradually mastered, requires repetition and consolidation. It can be said that speech is the result of healthy breathing. Children should figuratively describe the respiratory and phonation organs as an inverted tree, where the leaves are the lungs, the trunk is the trachea, play with the emphasis on the word organ and learn about the involvement of the bronchotracheal region in resonance. To maintain important aerodynamic conditions, it is necessary to regulate the dosed energy of oral breathing in the hypochondrium. Exercises increase the activity and tone of the diaphragm, the coordination of phonation and articulation (a tightly closed area behind the sky that prevents the leakage of speech sound from the nasal cavity). In this case, the vowels are pronounced strongly and energetically.

It is also important to achieve a successful speech correction to put in contact the children with their sensory perceptions. One of the most powerful methods for this is to stimulate the positive emotions generated by the perception of various functional capabilities of the body. By activating sensory perception, we help the child feel the joy of his physical presence, understand the relationship between emotions and body impulses. Children with

pleasure distinguish sounds from different objects, enjoy different tactile sensations and identify different substances by smell. In carrying out appropriate tasks, children should try to more fully express their feelings in the body. In recent years, detailed training programs have been developed for the development of communication skills in patients with various disorders, based on body-oriented therapy and other psychotherapeutic techniques that can be successfully used in working with patients.

However, it is important to discuss how effective exercises can be that encourage participants to maintain physical contact with each other, for example: "Touch your partner's back, find a comfortable position and hold it." Teenagers who do not accept their physical self usually avoid this contact. Such tasks, if they are performed in any way, give the patient the experience necessary to understand his problems, but the impulse for more free contact with other people can be blocked in the face of an unfamiliar situation of fear and lack of spontaneity. Therefore, it is advisable to use other methods with patients at the early stages of speech correction such.

Nevertheless, interaction is an important factor in the treatment and it should not be avoided. As highlighted by Hwa-Froelich (2015) it is through more consistent and competent social interactions that children feel they have a strong, secure foundation from which to explore the world allowing them to better manage and/or predict outcomes. It also helps children to view interactions with other people as positive and enjoyable promoting future relationships with peers and other adults. Through attuned caregiving, children receive face-to-face contact with their caregivers, enabling them to process facial expressions, tone of voice, and body postures (nurturing, flexible versus stiff and distant postures).

CONCLUSIONS

It is important to carefully study the clinical and psychological-pedagogical data to determine the characteristics of speech defects, the proper organization of the complex effect and ways to improve the correctional work with children with rhinorrhea. One of the first stages in treatment is to collect anamnestic data for proper speech therapy and based on this information, the correct direction of speech therapy has to be selected.

During a speech therapy examination, the structure and mobility of the articular apparatus of children with rhinolaryngitis is investigated and then the pronunciation status should be checked very carefully. In addition, the state of phonemic perception needs to be checked and for a comprehensive speech correction is advisable to conduct a speech therapy examination. Also, when examining the dynamic organization of the movements of the articular apparatus, the mobility of the speech apparatus need to be evaluated which contribute to select the best approaches to treatment.

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