



THE INFLUENCE OF PERSISTENT RHINOPHARYNGEAL OBSTRUCTION ON SPEECH AND LANGUAGE DEVELOPMENT

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ABSTRACT

The article is a logopedics study about the influence of persistent rhino-pharyngeal obstruction on speech and language development. It is a part of a project about early diagnosis of hearing impairment in children manifesting the pathology mentioned above. The aim of the project is to create an algorithm for early identification of infants at risk group with recurrent nasopharyngeal pathology. The article offers research on persistent rhino-pharyngeal obstruction that affects the middle ear and causes hearing loss. During the childhood it can provoke a speech-language delay.

Key words: rhino-pharyngeal obstruction, otitis media, hearing loss, speech disorders, language development

INTRODUCTION

This article presents a logopedics study about the influence of persistent rhino-pharyngeal obstruction on speech and language development. It is a part of the work on a project about early diagnosis of hearing impairment in preschool children, who are manifesting the pathology mentioned above. The aim of the project is to create an algorithm for early identification of infants at risk group with recurrent nasopharyngeal pathology.

MATERIALS AND METHODS

The goal of the article is to present a preliminary theoretical research about the rhino-pharyngeal obstruction and its influence on speech and language development. This type of pathology affects the middle ear and causes hearing disorder. During the childhood it can provoke a speech-language delay.

The potential interactions between middle ear mucosa, eustachian tube, pharynx and nasal cavities have been studied by several authors. Most inflammatory disorders of the middle ear are thought to be related to inadequate ventilation through the eustachian tube. The

tube is frequently involved in the pathological processes of the nasal, paranasal and rhino-pharynx cavities, therefore nasal obstruction can alter eustachian tube function. (1)

The eustachian tube connects the tympanic cavity and nasopharynx. Its functions are to ventilate the tympanic cavity and air cells; to equalize pressure differences between the tympanic cavity and the atmosphere; to drain the middle ear spaces; to create a barrier ascending infection. (2)

The eustachian tube is situated more horizontally in infants and small children than in adults and it is considerably shorter and broader. Because of the angle and shortness of the tube in children, fluid is able to reach the middle ear from the nasopharyngeal area with a greater ease and has greater difficulty escaping from the middle ear cleft. (3) Presumably this compromises the overall function of the eustachian tube, according for the higher incidence of otitis media in children.

Hearing loss is considered the most common complication of otitis media. The type of loss is usually conductive because the problem is located in the middle ear, sensorineural or inner ear involvement can also occur, especially in long-standing cases of otitis media. The degree of hearing loss in individual cases can range from normal sensitivity to

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hearing losses as great as 50 dB. Deficiency in communicative and/or psychoeducational skills may result from longstanding middle disease with effusion. It is widely suspected that children with otitis media are more susceptible to delays in speech, language, and cognitive development, and in education. If chronic otitis media resulted in a mild or mild-to-moderate hearing loss that developed at an early age (< 18 months) and the hearing loss persisted for many months, a negative effect on the development of communication skills could occur.(3)

The basic tool for communication between humans is verbal speech and normally children learn language through hearing. Speech and language in children appear and develop by imitating adults (parents, relatives, caregivers).

The “critical” period for speech and language development is the time, generally during the first 5 years of life, when the central nervous system exhibits its most rapid growth and the correspondingly heightened facility for language learning. Researchers on language acquisition agree that language growth during the first few years of life is phenomenally rapid and this period is marked as “critical” because the onset of a language system at a later age is impossible. (4)

The relation between speech and hearing is that through hearing is realized the perception of the environmental sounds and the speech. Children develop their speech and language by imitating the adults through listening. They learn to understand the language that the people use to communicate with them and to speak it. The hearing is used as auditory feedback to control the speech when speaking.

Even a mild or partial hearing loss can affect a child's ability to speak and understand language. When hearing process is disabled the reception of the sounds and the speech and language are incorrect. This could create indistinct auditory images in the brain and incorrect speech and language production and /or even language delay. The hearing loss could provoke voice disorders as nasalization, low or loud voice etc.

The studied authors maintained that the persistent otitis media causes hearing impairment; poor speech articulation and verbal comprehension ability; language delay; behavioral problems; lower IQ in some cases; affecting the child's functioning and quality of life.

There is a brief description of researches and results about the effect of otitis media on language development in **Table № 1**.

Table 1. *The effect of otitis media on speech and language development*

Authors	Periods with otitis media	Speech and language abilities	Correlations
Silva, Ph. A., Chalmers, D., Stewart, I. (1986) (5)	in the first 3 years of life	poor speech articulation and verbal comprehension ability	Positive
Teele, Klein, Chase, Menyuk, and Rosner (1990) (6)	in the first 3 years of life	poorer articulation and language-related skills	Positive
Roberts, Burchinal, Davis, and Collier (1991) (7)	in the first 3 years of life	No significant language delay	No
Likewise, Schilder et al. (1993)	between 2 and 4 years	speech and language disorder	Positive
Grievink, Peters, Van Bon, & Schilder (1993) (8)	early-life otitis media	speech and language disorder	Positive
Groenen, Crul, Maassen, & Van Bon, (1996)	early-life otitis media	speech and language disorder	Positive
Roberts, Burchinal, and Zeisel (2002) (7)	in the first 2 years	poor expressive language	Positive
Paradise and Feldman (2007) (8)	in the first 3 years of life	No significant language delay	No
Zumach A, Gerrits E, Chenault M, Anteonis L (2010) (8)	in the first 2 years of life	speech and language disorder	Positive

Most of the authors proved that early-life persistent otitis media affects the speech and language development. Only two teams of researchers reported for no significant language delay in the studied groups of children with otitis media.

From this theoretical research could be determinate the factors influencing the level of speech and language development in cases of persistent rhino-pharyngeal obstruction. They are:

- Age of appearance of the pathology mentioned above – when the problem occurs in early age (less than 3 years) then the risk for speech and language disorders is bigger
- Level of hearing loss – mild or mild-to-moderate
- Unilateral or bilateral hearing loss – the damages on speech and language development is less when the hearing loss is unilateral
- Episodes of rhinopharyngeal obstruction – frequency and lasting
- Cognitive development of the child – if the child is with normal or abnormal cognitive development
- Socio-economic status – if the family is with low socio-economical status it may be enable to allow an expensive medical treatment
- Parents' competences about the problem – if parents are not familiar with this pathology they would have problems with recognizing the symptoms

CONCLUSIONS

For less damage on speech and language development early diagnosis and identification of the patient with persistent rhinopharyngeal obstruction should be done. He or she must pass a medical treatment and if the child demonstrates speech and language disorder he or she should pass a logopedics rehabilitation course as soon as possible.

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