

Revision articles

An Integrative Review: Speech therapy with newborns with heart disease in Neonatal Intensive Care Unit

Revisão integrativa: atuação fonoaudiológica com recém-nascidos portadores de cardiopatia em unidade de Terapia Intensiva Neonatal

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ABSTRACT

This study aims to identify and analyze, through literature, speech therapy care in the Neonatal Intensive Care Unit (NICU) for congenital heart disease newborns. The source data is from Latin American and Caribbean Health Sciences (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE), SciELO and the search engine of the National Library of Medicine in the databases PubMed, also the Google Scholar search system (<http://scholar.google.com.br>). The integrative review leads to knowledge on speech therapy studies with the population of the NICU, however, it does not describe the features of newborns with congenital heart disease, not even the exclusion factors on the research. The speech therapies in NICU are already consolidated and presented as assessment procedures and stimulator of the sensory-motor-oral system, using techniques of non-nutritive and nutritive sucking and hearing screening. The care of patients with congenital heart disease should be differentiated as it has particular features that can compromise the performance concerning feeding. The insertion of the speech therapist in cardiac neonatal ICU is not mentioned and even less are described the goals and practice of this professional. There was found the need for apparatus and investment on staff training to better management of cases in NICUs and specialized units in congenital heart disease, what makes this issue subject for further studies.

Keywords: Heart Defects Congenital; Speech, Language and Hearing Sciences; Intensive Care Units, Neonatal

RESUMO

O objetivo deste estudo foi identificar e analisar, por meio de levantamento bibliográfico, a atuação fonoaudiológica em Unidades de Terapia Intensiva Neonatal (UTINs) em casos de cardiopatia congênita. Como fonte de dados foram utilizadas as seguintes plataformas: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), *Medical Literature Analysis and Retrieval System* on-line (MEDLINE), Scielo e o serviço de pesquisa da *National Library of Medicine* nas bases de dados Pubmed, sistema de procura do Google Acadêmico ([HTTP://scholar.google.com.br](http://scholar.google.com.br)). Foram pesquisados trinta e dois trabalhos, sendo a atuação fonoaudiológica em UTINs descrita em vinte e oito deles, os quais apresentam como procedimentos avaliação e estimulação do sistema sensorio-motor-oral, com uso de técnicas de sucção não-nutritiva e nutritiva, além de triagem auditiva. Porém, as características dos neonatos com cardiopatia congênita e a inserção do fonoaudiólogo em UTIN cardíaca não são citadas, pouco se caracterizando os objetivos e a prática desse profissional. Apenas uma publicação obedeceu aos critérios de inclusão do presente estudo. Trata-se de um trabalho que descreve a transição da alimentação enteral direta para o seio materno em recém-nascidos pré-termo cardiopatas, com idade corrigida, em um centro de terapia intensiva neonatal. Foi possível constatar então a escassez de trabalhos publicados sobre intervenção fonoaudiológica com RN cardiopatas, o que indica a necessidade de novos estudos sobre o tema, já que a atenção a esses pacientes deve ser diferenciada, visto que apresentam particularidades que podem comprometer o desempenho na alimentação.

Descritores: Cardiopatas Congênitas; Fonoaudiologia; Unidade de Terapia Intensiva Neonatal

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INTRODUCTION

Newborns with congenital heart diseases require specific care and handling due to the high mortality rate¹ in these cases. The birth conditions, such as the presence of choking, prematurity, congenital infection, can justify findings in the physical exam and direct the diagnosis of certain heart diseases².

A study on the occurrence of cardiac disorders in Neonatal Intensive Care Unit (NICU) has demonstrated that, out of the 298 cases of cardiac diseases in prematurity, 184 (61.75%) presented cardiac murmur, 36 (12.08%) persistence of the arterial duct [*ductus arteriosus*] (PCA), eight (2.68%) intra-ventricular communication (CIV), seven (2.35%) intra-arterial communication (CIA), sixteen (5.37%) unspecific malformations, in addition to associated diagnosis: nine (3.02%) PCA+CIA and four (1.34%) CIA + pulmonary artery stenosis. Early diagnosis and treatment prevent the hemodynamic deterioration of the baby and injury to other organs, mainly the central nervous system³.

According to the severity of the heart disease and the need of special care, the newborn may remain in NICU until the correction of the cardiac malfunction and/or stability of the situation.

In this context, speech therapy works in the prevention and detection of possible alteration in the functions of the stomatognathic system and the clinical⁴ status of the newborn patient. The presence of such professional in this multi-professional team is highly important due to the domain of the anatomophysiology of the stomatognathic functions (sucking, breathing and swallowing) and being engaged in treating the alterations, in the stimulation of oral feeding and promotion of maternal breast feeding, therefore contributing to the gain of weight and hospital release⁴⁻⁶.

Other important intervention of the speech therapist in neonatology refers to the prevention and promotion of hearing care. The Neonatal Hearing Screening (TAN) Program has as purpose the early detection and rehabilitation of hearing impairment⁷⁻⁹.

When the newborn is premature (RNPT), its feeding may be alternative (gastric tube) due to the lack of coordination among the sucking-breathing-swallowing functions and overall immaturity¹⁰. However, the introduction of gastric tube may cause alterations in the development of oral motor capabilities, making it difficult the transition to oral feeding¹¹. In order for this process to be safe, without risk of bronchoaspiration, it is important to ensure the proper development of the

structures and maintenance of feeding and defense reflexes.

Therefore, in order to prepare the RNPT for oral feeding, it is necessary the oral-motor-sensory (SMO) assessment and stimulation, in addition to non-nutritive sucking (SNN)¹². SNN, in the speech therapy context, is used to fortify the oral musculature, regulate the states of consciousness, facilitate digestion and the regulation of the sucking-swallowing-breathing (SDR)¹³ functions. Nutritive sucking (SN) shall only occur when the newborn is able to receive volume, observing sucking blocks, time and number of sucking associated to force and rhythm in addition to coordination of the SDR¹⁴ functions.

Newborns with congenital heart disease preset predisposition and high potential for bronchoaspiration. Cases of cyanosis, strain and lack of coordination of the SDR¹⁵ functions are common. The association of other factors, such as congestive heart failure and pulmonary hypertension, can undermine growth and weight and stature development resulting in higher nutritional harm¹⁶. Given this pattern that leads to the risk of bronchoaspiration, the work of speech therapy is important to indicate a safe way of feeding.

In practice, the criteria for speech therapy work is the same used with premature newborns, but in the research performed there was only one article including such population in the study. As it can be noted below, the article reports the possibility of feeding transition from the alternative feeding to maternal breast feeding after stimulation of non-nutritive sucking in empty breast.

It was possible to observe, therefore, that there is a gap regarding the registration of speech therapy practice devoted to cases of newborns with congenital heart disease in NICU's. In order to contribute to the area, the present study aimed at investigating, from an integrative review of the literature, researches that describe the nature of such speech therapy work.

METHODS

It is an integrative review of literature, followed by a quantitative and qualitative analysis on the speech therapy work in NICU's, specifically in cases of congenital heart diseases. The period determined was from 2009 to 2013, and the following steps were taken: identification of the speech therapy care in neonatal population with congenital heart disease and description of the speech therapy procedures in cardiovascular diseases. The inclusion factors were

complete papers written by speech therapists that described studies with newborns with congenital heart diseases, performed in NICU's. The exclusion factors were papers on congenital heart diseases produced by other professionals, absence of description of speech therapy procedures in NICU and the pathology in caption. In order to guide the integrative review, the following question was asked: Which are the characteristics of the speech therapy care in NICU's in cases of congenital heart diseases?

In order to survey the scientific production, a search was performed in the following database: Latin American and Caribbean Health Sciences (LILACS), Medical Literature Analysis and Retrieval System on-line (MEDLINE), Scielo and the source engine of the *National Library of Medicine* in the database PubMed, and the Google Scholar search system (<http://scholar.google.com.br>) was also used. The keywords of the *Medical Subject Headings* (MeSH) and Decs and the Boolean operator AND were used, resulting in the following combination of articles: cardiac and speech therapy neonatal intensive care unit, congenital heart disease and dysphagia; infants and cardiovascular disease and dysphagia; speech therapy and neonatal intensive care unit; heart diseases and speech therapy. For the analysis of the articles, those written in Portuguese, English and Spanish were considered.

The studies were distributed in the following categories of speech therapy care in NICU's: assessment of the oral-motor-sensory system, stimulation of the oral-motor-sensory system, non-nutritive sucking, nutritive sucking, breast feeding and neonatal hearing screening in population with congenital heart disease.

REVIEW OF LITERATURE

In the search for data bases, thirty two articles were located. In a first moment, two articles were excluded, produced by physicians and related only to surgical procedures and medications, and one that mentioned an age non compatible with the population of this research, in addition to refer to a care out of NICU. Subsequently, twenty eight texts that mentioned congenital heart disease as exclusion factors to the investigation proposed were also excluded.

Even though the categories considered in the work have been non-nutritive sucking, nutritive sucking, breast feeding and neonatal hearing screening, the latter was not referred in the studies found. Only one work was devoted to the theme, however, it was

not available and, for such reason, it could not be considered.

In the integrative review on the theme, therefore, it was considered only one production devoted to newborns with congenital heart disease, treated in NICU, described as neonatal intensive care unit¹⁷.

The study selected characterizes the transition techniques of feeding by gastric tube to breast feeding in premature newborns and includes the newborns with heart disease¹⁷. In general, these patients present tiredness, strain, saturation fall, lack of coordination of the sucking/swallowing/breathing function with risk of bronchoaspiration and worsening of the situation.

Non-nutritive sucking (SNN) is an organized and repetitive standard of short and stable sucks and long and irregular pauses¹⁸. In the article selected, this stimulation was performed in a certain newborn, using "gloved finger" and "empty breast" techniques. After SNN training, with adaptation of the oral facial structures and coordination conditions of the S/D/R functions, the patient was exposed to an assessment with partial volume, that is, with the breast partially empty. Later, it was then assessed the nutritive sucking with the breast full and S/D/R coordination was observed.

Lastly, although the performance of the patient has not been described, the study highlighted the importance to keep the heart and respiratory frequency stable, for the supply of volume orally¹⁷.

Breast feeding is the most suitable and appropriate way to promote the oral-motor development and set the correct standard of the functions performed by the phonoarticulatory organs. However, in practice, breast feeding in patients with congenital disease is many times replaced by an alternative way of feeding for precaution, as the infant may present tiredness, strain and lack of coordination of sucking-swallowing-breathing functions, making difficult the gain of weight and leading to the risk of bronchoaspiration.. In fact, the clinical stability of the newborn is important so it is fed in the maternal breast, because only then it performs the necessary pauses during breastfeeds and coordinates the functions involved.

It is worth highlighting that newborns with severe heart disease and that need cardiac surgery in the first year of life undergo to early ablactating due to long hospitalizations¹⁹, presenting high risk of difficulty of feeding until the age of two years¹⁵.

All these factors indicate the importance of the speech therapy care with this population, such care

that is similar to the care developed with premature newborns¹⁵, as previously mentioned.

The speech therapist must, therefore, be inserted into neonatal NICU's specialized in cardiology, as indicated by the Executive Order n° 930 of May 10, 2012 – Neonatology Units²⁰. It is a professional expert in anatomophysiology of the stomagnathic functions and is able to treat the alterations, in addition to stimulate oral feeding and promote breast feeding²¹.

FINAL REMARKS

Speech therapy studies with NICU population are frequent, however, they do not describe the particularities of newborns with congenital heart diseases, and this situation is often referred as an exclusion factor from the researches.

Considering that the publications of a respective area reflect its clinical practice, it is verified with the present study that the speech therapy care, devoted to such population, is not yet consolidated as twenty eight works were excluded from those researched.

Another point to be outlined on the scarcity of articles published is related to the fact that this research is limited only to the intensive care units where clinical instability is frequent. It is worth highlighting that, certainly, in case the study comprised neonatal units of intermediate care, more publications would have been found.

In light of this, it is verified the need of aid and investment in capacitation of professionals for better conduction of the cases in neonatal care unit and in the units specialized in congenital heart diseases.

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