



Influence of physiotherapy in the treatment of children with autism spectrum disorder

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ABSTRACT

Introduction: The etiology of the disorder is not yet well defined, what is known is that several factors can predispose the child to have autism, which may be genetic and environmental factors, according to scientific evidence. The TEA has three measurement degrees, classified as mild, moderate and severe. It is important that the autistic child and his family have the support of a multidisciplinary team that instructs them to overcome the diagnosis and the current situation in which they find themselves. Based on the characteristics presented by the autistic individual, there is a need to develop activities that encourage movement patterns, posture, communication, socialization and psychic, for this reason the physical therapy intervention must occur early, promoting improvements in psychomotor development and daily needs. **Objective:** Highlight the benefits of physical therapy as a treatment for children with autism spectrum disorder, present with autism spectrum disorder and talk about the family attitude in view of the autism diagnosis. **Methods:** This study qualifies for its basic nature, being a bibliographical research with a qualitative approach, through scientific journals of the last 10 years. **Conclusion:** When talking about physiotherapy in ASD, it is possible to understand that as the autistic person undergoes these treatments, their difficulties become smaller. Physiotherapy allows the child to have physical, motor and emotional well-being.

Keywords: multidisciplinary team, development, rehabilitation, autism.

1 INTRODUCTION

Autism spectrum disorder (ASD) affects neurodevelopment, however, there is still no proven cause, its origin is unknown. Autism is a behavioral syndrome, with direct action on psychomotor development, characterized by social isolation, communication deficit and behavior patterns (SAFE; BIRTH; KLEIN, 2011).

Autism has levels that are determined according to the severity of the commitment that the individual presents to perform their activities of daily living (ADL's), the levels can be classified as mild, moderate and severe (MORAL *et al.*, 2017).

Physical therapy treatment should occur early, benefiting from improvements in motor development and daily need. The treatment of autism has a multidisciplinary team composed of professionals from various areas, such as: physiotherapists, occupational therapist, speech therapists, psychoecologists, physicians and others (SEGURA; BIRTH; KLEIN, 2011).

Hippotherapy for a child with autism has several benefits, such as muscle strength development, stimulation of motor coordination, postural correction and balance gain, promoting the physical and emotional well-being of the child (RIBEIRO *et al.*, 2019).



According to Dutra (2018), ludotherapy is a therapeutic practice that works artistically, more naturalistically, where it will apply in a playful way with the child to be able to develop communication, interest, motor coordination, capacidintellectual and cognitive ades. Ludotherapy is a set of playful and therapeutic activities, what matters is not only the product of the activity, but the action itself and the movement experienced, allowing the child to live in an allegorical and real world expressing their feelings and anxieties (RIBEIRO, 2013).

Hydrotherapy through the physical principles of water contributes to motor stimulation, social behavior, sensory development, confidence, self-control and muscle strengthening (BORGES *et al.*, 2016). According to Santos (2014), hydrotherapy ensures improvement in mood, motivation, calms psychic tensions and meets the autistic movements needs.

However, this research aims to understand how physiotherapy will influence the treatment of children with autism spectrum disorder (ASD).

This study conducted through a literature review is relevant because it shows that physical therapy contributes significantly to the advancement of the functions of activities of daily living, and aims to highlight the benefits of physiotherapy as a treatment in children with autism spectrum disorder.

2 METHODOLOGY

The present study was conducted through a literature review. The bibliographic research is part of the bibliography already made public in relation to the theme of study, its purpose is to put the researcher in direct contact with everything that was written, said or filmed on a given subject (LAKATOS; MARCONI, 2017).

The documents were analyzed in the Scientific Hectronic Library Online (SciELO) database. This study is classified as qualitative. The research was conducted through scientific journals of the Portuguese language of the last 10 years, related to the areas that presented interventions and results in the application of physiotherapy in children with autism. All documents were evaluated and reviewed by both researchers. The following descriptors, autism, multidisciplinary team, neurodevelopment and rehabilitation were used. The inclusion criteria used were articles of free access and that dealt clearly on the subject, 30 articles were mentioned in the text, and in total 48 were found, while the exclusion criteria used were researches that contain little content, with many third-party citations and studies that were based on the general objective of this study, 18 articles were discarded.

3 THEORETICAL REFERENCE

Autism spectrum disorder (ASD) qualifies as an invasive neurodevelopmental disorder (MARTINS; GÓES, 2013). It was first told in 1911 by psychiatrist Eugen Bleuler. However, he stood out years later, with a study published by physician Leo Kanner in 1943 (CUNHA, 2015).

There is still no proven cause, its origin is unknown. ASD is a behavioral syndrome, with direct



action on psychomotor development, characterized by social isolation, communication deficit and behavior patterns (SEGURA; BIRTH; KLEIN, 2011).

According to the World Health Organization (2017), a study conducted about 50 years ago shows that cases of autism have been advancing around the world. What is known about its etiology is that several factors can make the child available to have, which may be genetic or environmental, according to scientific evidence.

However, according to Toledo (2010) neurosciences have associated this condition with a specific neuron, being, mirror neurons, they are connected with the context of imitation, social interaction and language.

Although several genes associated with ASD have been detected on several chromosomes, there is still no study that firmly indicates a gene that is involved with the autism condition (FARIAS, 2018).

However, scholars believe that autism may be a genetic condition related to the x chromosome, which makes male children more prone to this condition, since they have only one x chromosome, unlike the female chromosome that has two x chromosomes (ROCHA *et al.*, 2019).

Environmental factors may be related to the etiology of autism, exceptionally in relation to maternal health care in prenatal care, such as some types of infections, drug use, alcoholism, tobacco, use of abortion drugs, pollution of the environment, the age group of parents, among others (PORTO; BRUNONI, 2015). However, according to Farias (2018), even with the great commitment and attention dedicated by neuroscientists, a definitive cause on autism has not yet been reached.

ASD is a complex syndrome that affects three considerable areas of human development: behavior, communication and socialization (FERNANDES, 2014).

It is possible to identify the disorder before three years of age, through the characteristics presented, such as delay in language development whether verbal or not, repetitive behaviors, difficulty in social interaction, stereotyping, limitations of activities and communication deficit (MARTINS; GÓES, 2013).

The autistic person does not easily share his emotions, tastes, does not maintain eye contact spontaneously, presents low muscle tone, his interests are restricted, rarely share attention with events or objects and has difficulty in relating to other people (SEGURA; BIRTH; KLEIN, 2011).

According to Moral *et al.*, (2017), children with autism spectrum disorder do not have a physical aspect different from the other, however, it is possible to notice the changes through their behavior.

According to Lopes *et al.*, (2019) autism is not easily diagnosed, usually family members seek help from various professionals, such as physiotherapists, speech therapists, neuropediatricians, psychiatrists and psychologists.

According to Locatelli and Santos (2016), according to the degree of impairment, it is possible to make an early diagnosis, around one and a half years of age. However, the earlier the signs manifest, the easier the recognition and the more serious the picture of this child will be (FERREIRA, 2016).

The degree of autism is measured according to the severity of the impairment, and may be mild,



moderate and severe, according to the difficulty that the individual presents to perform his activities of daily living (MORAL *et al.*, 2017).

According to Braga (2019), in the mild degree the diagnosis is later, being between 7 - 8 years, may manifest difficulties to socialize, as well as low interest in communicating with other people, repetitive and restricted behaviors, usually presents blockage in the midst of routine changes.

And according to the Scientific Department of Pediatrics of Development and Comportment (2019), the moderate degree has been the most common, and its diagnosis occurs between 18 - 34 months, presents signs of intermediate intensity, requires help to perform daily activities, may have difficulty in communicating by speech or not communicating air verbally, social interactions, discomfort in the face of changes, lack of eye contact and intermediate food selectivity are observed.

However, no severe autism is recognized between 12 - 24 months, presents the signs intensely, requires help to perform most daily activities, repetitive habits, restricted, have severe communication problems, presents high food selectivity, are extremely limited to interact with other people, have low muscle tone and have difficulty in dealing with changes (SCIENTIFIC DEPARTMENT OF PEDIATRICS OF DEVELOPMENT AND BEHAVIOR, 2019).

According to Pinto (2016), when ASD emerges, several changes are caused in the life of the family and the child, since these changes cause a shock in the family environment, they are related as difficult to deal with. The consequences involve changes in family bonding, marital conflicts, burden of care, relationship with friends and social distancing (MAPELLI, 2018).

It is noted that the autistic child and his/her family need the support of a multidisciplinary team that instructs them to overcome the diagnosis and the current situation in which they are (LOPES *et al.*, 2019). According to Brandalise (2013), the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has been the most used method currently to diagnose the disorder.

According to Netto (2015) upon receiving the diagnosis of autism, family members suffer from the loss of a healthy child who were waiting, from this, arise the five phases of mourning, which were described by psychiatrist Elisabeth Kubler-Ross, the first phase is denial, the person remains on the psychic defensive, denying the certain situation in which she finds himself and somehow she wants to try to escape the reality of your loss. After that, he comes to the phase of anger, where the person begins to restrain himself with everything around him, questioning the reason for being going through it, feeling diminished without being able to conform to the situation.

The third phase is the bargaining phase, here the individual begins negotiation, the individual even makes promises to God that he will be a better person, to emerge from that situation. In the penultimate phase, depression enters, the individual disconnects from the world, feeling incapable through the problem. Fifth and last phase is acceptance, at this stage has passed the shock of loss the person is no longer so upset and in this way can see beyond the difficulty, being ready to weaken the situation (NETTO, 2015).

"[...] the good family relationship shows that the members have properly overcome the difficulties



of their children, even if they are many and have no cure, they understood that they can be overcome" (MARQUES; DIXIE, 2011).

Because it is a neurological condition, there is no cure for autism spectrum disorder, but with an early diagnosis and appropriate treatments, the child with autism will develop fundamental skills for his routine (MORAL *et al.*, 2017).

Physical therapy intervention should also occur early, with improvements in psychomotor development and daily need as a benefit. The treatment of autism has a multidisciplinary team composed of professionals from various areas, such as: physiotherapists, occupational therapist, speech therapists, psychologists, physicians and others (SEGURA; BIRTH; KLEIN, 2011).

Physiotherapy performs activities with playful and pedagogical toys, working on concentration skills, increased reasoning and great retention of work of details, generating inhibition of abnormal movements, and improvement of self-control (FERREIRA *et al.*, 2016).

Physiotherapy works to develop or improve basic functions such as rolling, sitting, walking, running and jumping, exercises are performed for strengthening, motor planning, postural adequacy, balance, coordination, activities added to psychomotricity. The behavioral part is fundamental in the care of children with autism, since many of them cannot develop common activities (MOURA, 2018).

Based on the characteristics presented by the autistic individual, it is observed the need to develop activities that stimulate the communication, socialization and psychic of the same (PEREIRA; ALMEIDA, 2017).

Hypotherapy or hippotherapy advances new forms of communication and through the connection with horses decreases anxiety. For autistic children, this treatment alternative has several benefits, such as muscle strength development, stimulation of motor coordination, postural correction and balance gain through the link between "person-animal" (RIBEIRO *et al.*, 2019).

According to Barbosa (2013), in the riding period the brain of the person who practices is constantly functioning, so that motor, respiratory, postural adjustments, among others, occur. When performing gait, experiences capable of stimulating the plastic potential of the central nervous system (CNS) are generated through sensory and motor stimuli, enabling the child the same perceptual, cognitive and motor mechanism that an individual with normal development presents, establishing the formation of new movement patterns in the correct way.

According to Seixas (2011), hypotherapy develops the ability to perceive sense-tactile, increases circulatory and respiratory capacity, develops the ability to move joints, increases the reflex and promotes psychomotor coordination.

Ludotherapy is another therapeutic method widely used by physiotherapy, the playful comes from the origin of the Latin word ludos que means game. It is a set of playful and therapeutic activities, what matters is not only the product of the activity, but the action itself and the movement experienced, allowing the child to live in an allegorical and real world expressing their feelings and anxieties (RIBEIRO, 2013).



Because it is a therapeutic modality, playful activity with children is used, applying the act of playing as a tool for favoring and simplifying verbal and nonverbal expression. These games should be planned by assisting therapeutic techniques related to larger objectives indicated by the physiotherapist, in which intellectual and cognitive skills are developed, which allow assimilation and behavioral development. The environment is all planned for expressive facilitation, with the strategic placement of objectives, such as toys and games exposed to the free, to facilitate the handling by autistic children (SILVA, 2017).

According to Ribeiro (2013), ludotherapy is the psychotherapy adapted from a child's approach, which are based on helping the child through play, and to express their conflicts and difficulties more easily, helping to carry out their integration and social adaptation, in order to promote or reestablish the psychological well-being of the child through playful activity.

Hydrokinesiotherapy through its physical principles of water contributes to motor stimulation, social behavior, sensory development, confidence, self-control and muscle strengthening. Hydrotherapy will also influence stereotyped behavior and body control (BORGES; MARTINS; TAVARES, 2016).

Aquatic physiotherapy has proved to be a growing area with great possibilities, is effective in the achievement of skills, in the improvement of social behavior and motor development (BORGES *et al.*, 2016).

According to Santos (2014), hydrotherapy ensures improvement in mood, motivation, calms psychic tensions and meets the autistic movements needs. Through the movements performed during aquatic physiotherapy, it is possible to favor the advancement of the individual, exceptionally the autistic, because it stimulates the learning of laterality, muscle strengthening, develops balance, motor coordination, assists in the gain of range of motion (ROM), increased cardiovascular capacity, promotes knowledge of the space around him and his own body (PEREIRA; ALMEIDA, 2017).

According to Pereira and Almeida (2017), from the moment the ASD carrier adapts to the liquid medium, he is urged to demonstrate the changes resulting from therapy, being social interaction, balance, confidence, cooperativeness, coordination, postural correction and others.

Physiotherapy is part of a multidisciplinary team, to offer better care to children diagnosed with autism, because their intervention is fundamental in the treatment of these children, regardless of the level of seriousness presented. Since fisiotherapy is capable of promoting human development (DUTRA, 2018).

4 FINAL CONSIDERATIONS

In the course of this study it was possible to understand that the physiotherapeutic intervention is an experiential process of extreme relevance, where the autistic being is seen as a whole, being worked by touch, listening, speaking or even through a simple look. To be autistic is to be a person like any other, just, with different limitations.

Physiotherapy has several effective therapeutic modalities in the treatment of children with autism spectrum disorder. When talking about physiotherapy in ASD, it is possible to understand that to the extent



that the autistic person is submitted to these treatments, their difficulties become minor.

The physical therapy interventions presented considerable influences, since each treatment alternative was able to reduce the condition of the disorder, allowing the child to have physical, motor and emotional well-being, among others.

Therefore, the research was successful in the objective, because it highlighted the benefits of physiotherapy as a form of treatment for children with ASD, proving to be beneficial in the difficulties presented by an autistic person.

The diagnosis of autism triggers feelings of the most diverse in the family environment, feelings that are common in the period of discovery of the disorder, because characteristics and situations difficult to deal with begin to emerge. However, physical therapy approaches in the treatment of ASD in children clearly express their efficacies, especially in early interventions, whether through hypotherapy, ludotherapy or hydrokinesiotherapy.

This study sought to perform a previous approach on the importance of the physiotherapeutic intervention in the three-way treatment of children with autism spectrum disorder. It is suggested that further studies may be interested in this theme, regarding physiotherapy and its challenges as a tool to treat this neurological condition, ASD.



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