

# Occupational therapy in a child hospitalized with severe malnutrition and neuro psychomotor development delay: case report

## *Terapia ocupacional em criança hospitalizada com desnutrição grave e atraso no desenvolvimento neuropsicomotor: relato de caso*

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### ABSTRACT

Malnutrition, if not diagnosed and treated in children undergoing development, can cause multiple symptoms and irreversible damage to the neuro psychomotor development. Children Occupational therapy presents ample performance in children with delayed development resulting from different causes including malnutrition. The multidisciplinary team, in the context of the pediatric hospitalization, favors the holistic understanding of the treatment process and works as an important instrument to approach the patient and his family. This study describes the role of occupational therapy as the element able to potentiate the neuro psychomotor development process, associated with the multidisciplinary approach of a child with severe malnutrition in the pediatric ward of a urgency and emergency public children's hospital.

**Key words:** Occupational Therapy; Malnutrition; Child Development; Child, Hospitalized.

### RESUMO

*A desnutrição, quando não diagnosticada e tratada em crianças em fase de desenvolvimento, pode causar múltipla sintomatologia e provocar danos irreversíveis ao desenvolvimento neuropsicomotor. A terapia ocupacional, na área infantil, apresenta ampla atuação em crianças com atraso no desenvolvimento por diferentes causas, incluindo a desnutrição. A equipe multidisciplinar, no contexto da internação hospitalar pediátrica, favorece a compreensão holística do processo de tratamento e funciona como importante instrumento para abordagem ao paciente e sua família. Este estudo descreve o papel da terapia ocupacional como elemento capaz de potencializar o processo de desenvolvimento neuropsicomotor, associado à abordagem multidisciplinar de uma criança com desnutrição grave em enfermaria pediátrica de hospital infantil público de urgência e emergência.*

**Palavras-chave:** Terapia Ocupacional; Desnutrição; Desenvolvimento Infantil; Criança Hospitalizada.

### INTRODUCTION

Despite the reduction in the prevalence of malnutrition in children under five years of age in Brazil in the last decades, malnutrition is still a Brazilian public health problem, particularly in economically disadvantaged populations. Severely malnourished children arrive at children's hospitals with multiple symptoms and risk of death and require a multidisciplinary approach.<sup>1</sup> In Brazil, the rate of hospital mortality due to malnutrition is 20%, well above the recommended by the World Health

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Organization (5%), and is believed to be underestimated because it is not reported as the main cause of death on many death certificates.<sup>2</sup>

The Ministry of Health recommends ten steps for the treatment of severe malnutrition, which is characterized by the inadequate intake of nutrients, protein and energy, causing damage to multiple organs. The ninth step is called: "affection, stimulation, recreation, and care".<sup>2</sup> In occupational therapy interventions for hospitalized children, the environment that stimulates playing becomes an important resource for promoting adaptation, learning, and the psychosocial development of children; the family involvement in the treatment is important for enhanced therapeutic results. From the perspective of a family-centered care, intervention programs that combine the focus on the child and family represent the "best practice" because they are more likely to have a positive impact on the child's development.<sup>3</sup>

This report describes the therapeutic results from the intervention of a multidisciplinary team in a child with malnutrition and delayed neuropsychomotor development, hospitalized in the children's hospital ward.

## CASE REPORT

GRRSS, was one year and three months old when admitted to the children's hospital with pallor, bowel movement, once a day as liquid feces, and sporadic vomiting. The patient was born at term by natural hospital childbirth, Apgar 9/10, the weight of 3.8 kg, and no complications during pregnancy and childbirth. He was hospitalized for seven days two months earlier due to pallor, intense mucocutaneous anemia, and urinary tract infection.

His development was normal until 6 months of age when he began to show an important regression in the neuropsychomotor development (DNPM), absence of vocalization of words or sounds (with communicative intention), and loss of the ability to crawl and stand up with support. It is expected that 15-month-old children engage in walking without support, performing gestures at the request, vocalization of one word, and functional handling of objects.<sup>4</sup>

The mother reported that, unlike her other children, he did not accept the transition from exclusive breastfeeding to complement feeding after six months of age. He refused all foods, and the family economic conditions prevented the offering of a diet other than

breast milk supplemented with cookies and, at lunch, two forced spoonful of the same food served to the rest of the family, which was insufficient to meet his nutritional needs. The patient's weight was 7 kg.

The initial diagnosis was severe malnutrition and deficiency of vitamin B12.

The occupational therapy evaluation, conducted 10 days after his hospitalization and based on the clinical observation of cognitive, motor, emotional, and relational behaviors expected for his age, and a semi-structured interview with the family to collect relevant information for the therapeutic process,<sup>5</sup> revealed a thin, tearful, and agitated child accompanied by his father and unable to calm down in the absence of the mother. He did not show interest in toys, songs, and games when stimulated to play. Independent behavior in changing position in bed was observed; however, he was unable to remain standing, even when being helped. The inefficiency of muscular strength to support the lower limbs and important inability to walk were also observed<sup>6,7</sup> with tremors and difficulties to support his weight.

He presented important deficiencies in the neuropsychomotor development with the lack of cognitive, emotional, and motor skills expected for his age. In addition, signs of sensory dysfunction, indicated by the constant crying and mother's dependence to reorganize, and complete refusal to contact with other environmental stimuli were identified. The tactile defensiveness from sensory immaturity characterized by the dodging of sensory uncomfortable and stressful stimuli was evident.<sup>8,9</sup>

The hospitalization allowed observing the child's maternal devotion, even at the expense of her other children under the paternal care. It is known that the mother's attention to children born within a small inter-birth range is difficult;<sup>10</sup> however, the behavior in favoring the attention given to the patient was identified as a sign of a pathological bond, which was characterized by the absence of demarcation among peers, the causal factor of the dependency and consequences to the emotional development of the individual.<sup>11</sup>

From the assessment of the occupational therapist, the goals for the intervention were outlined in order to: provide more appropriate responses to external stimuli and acceptance of food; promote stimuli for playing development to promote DNPM and socialization; and modulate the intensity of the mother-child bond, with moments of self-awareness and individual psychosocial maturity.

During the initial occupational therapy sessions, the patient maintained an angry behavior with constant crying, only calming down in the mother's lap, who reported presenting a low threshold of tolerance to the child's cry and preference for keeping him up for most of the day. The patient did not have the experience of playing at home and according to family reports there was the absence of toys for him and his brothers.

The care sessions were composed by modulation and repetition of stimuli that calmed the child down because he displayed a hyper-responsive behavior and needed gradually increased stimuli, according to his good adaptive responses.<sup>8,9</sup> The main stimuli used in this approach were: manual body massage (deep tactile stimulus); vestibular stimulation with rhythmic and slow balance in bed; making a handmade toy and his familiarization with this object; and the offering of assorted toys during sessions.

Twelve sessions were performed during one month of monitoring by the hospital occupational therapy service; four of them were conducted in conjunction with the speech therapist, whose goal was to provide stimuli to organize and calm the patient down to obtain appropriate answers to the speech therapy intervention. This included massaging the intra- and extra-oral areas and feeding training, which were visibly stressful activities for the patient.<sup>8</sup>

Despite the mother's resistance to following the guidelines at first, she gradually demonstrated a behavior modification and began to alternate the care with the father and reduced the offerings of breast milk. At that time, the multidisciplinary work based on discussions of the case and joint assistance and exchange of information were decisive for the family approach and resulted in similar behavior and guidelines for the parents, forming a network of family support.<sup>12</sup>

One of the outcomes observed with the change in the mother's behavior was that the child began to accept the occupational therapist care and other clinical approaches while in bed, including acceptance to food stimuli during the speech therapy sessions and removal of the nasogastric tube leading to complete oral feeding.

## DISCUSSION

Poverty increases children's vulnerability, becomes a constant threat to their development, and is the cause of malnutrition, social deprivation, and educational disadvantage.<sup>10</sup> Food that is low in vitamins

and proteins leads to nutritional deficiency in periods of critical brain development, resulting in morphological and functional alterations in the development of the central nervous system causing neuropsychological deficits, delays in the acquisition of cognitive skills, alterations in anthropometric measurements, and muscle weakness.<sup>6</sup> This malnutrition, in this case,, was probably contributing to the late development of DNPM. At 15 months of age, the child was in the sensorimotor period in which there is a great need for exploration, manipulation of objects, himself, and others, and the pursuit of sensory experiences,<sup>13</sup> which was missing in the initial assessment of the patient.

The consultation with the parent in the occupational therapy care sessions favored the understanding of the sensory and playful stimuli needs in the child's routine; the importance of playing in the home context; the need of the child to explore the environment, make choices, and reduce the dependency of the physical contact with the mother. During the sessions, new toys were made available by the mother and the child began to experiment with new possibilities in a ludic way.

The interventions carried out in the hospital ward and the change of maternal attitude provided a stimulating environment, with opportunities for the progression in the patient's development,<sup>14</sup> mainly through playing, which provides physical skills training, social, emotional, and intellectual development, understanding of culture, thinking flexibility, adaptation, and learning. Therefore, the context, objects (toys), and the presence of parents or guardians become indispensable to provide varied sensory-motor experiences to the child and opportunity to play,<sup>15-17</sup> favoring a gradual evolution in contact with environment, objects, and people.

Before the hospital discharge, the patient was calmer, with appropriate responses to environmental stimuli, and showing abilities of children his age such as imitating actions, smiling in response to others, starting spontaneous speech, seeking attention for himself, and exploring objects. In addition, the gradual weight gain favored the increase in muscle strength and acquisition of the ability to go from sitting to standing with total independence, remaining in that position with the support of the upper limbs.

The patient was discharged from the hospital and Occupational Therapy Service after 30 days. The milestones of child development were used as outcome measures for his recovery along the treatment until the time of hospital discharge.

## CONCLUSION

This report discusses the process of an occupational therapy intervention in a malnourished patient at risk of development delay through the approach of a multidisciplinary team in the pediatric ward, as advocated by the Ministry of Health,<sup>2</sup> which has not been observed in similar national and international presentations.

Occupational therapy aims, in this particular circumstance, at the observation of the child's development, providing interventions that stimulate the neuropsychomotor development, guidance to the family, ludic experiences, and minimization and prevention of development alterations caused by hospitalization.<sup>15,18</sup>

Thus, the understanding of risks that malnutrition brings to the neuropsychomotor development as well as the need for a holistic approach to understanding the child's development within the pediatric ward were crucial to the occupational therapy treatment process.

## REFERENCES

1. Biscegli TS, Polis LB, Santos LM, Vicentin M. Avaliação do estado nutricional e do desenvolvimento neuropsicomotor em crianças frequentadoras de creche. *Rev Paul Pediatr.* 2007; 25(4):337-42.
2. Brasil. Ministério da Saúde. Manual de atendimento da criança com desnutrição grave em nível hospitalar. Brasília: MS; 2005.
3. Lammi BM, Law M. The effects of Family-Centred Functional Therapy on the occupational performance of children with cerebral palsy. *Can J Occup Ther.* 2003 Dec; 70(5):285-97.
4. Organização Pan-Americana da Saúde. Manual para vigilância do desenvolvimento infantil no contexto da AIDPI. Washington, D.C.: OPAS; 2005.
5. Rocha EF, Brunello MIB. Avaliação qualitativa em terapia ocupacional: princípios, métodos e técnicas de coleta de dados. In: Cavalcanti A, Galvão C. *Terapia ocupacional: fundamentação e prática.* Rio de Janeiro: Guanabara Koogan; 2007. p. 44-48.
6. Frônio JS, Coelho AR, Graças LA, Ribeiro LC. Estado nutricional e desenvolvimento motor grosso de lactentes entre seis e dezoito meses de idade. *Rev Bras Cresc Desenv Hum.* 2011; 21(1): 30-8.
7. Costa PHL. Desafios biomecânicos no desenvolvimento do andar infantil. *Rev Arq Mov.* 2008 jan/jun; 4 (1):160-8.
8. Magalhães LC. Integração sensorial: uma abordagem específica de Terapia Ocupacional. In: Drummond AF, Rezende MB, organizadores. *Intervenções de Terapia Ocupacional.* Belo Horizonte: Editora UFMG; 2008. p. 45-69.
9. Bunn W. Sensibilidade e processamento sensorial. In: Willard HS. *Terapia Ocupacional*, 11ª ed. Rio de Janeiro: Guanabara Koogan; 2010. p. 789-804.
10. Pilz EML, Schermann LB. Determinantes biológicos e ambientais no desenvolvimento neuropsicomotor em uma amostra de crianças de Canoas/RS. *Ciênc Saúde Coletiva.* 2007; 12(1):181-90.
11. Neme CMB, Dameto CA, Azevedo GMG, Fonseca MS. Implicações do vínculo mãe-criança no adoecimento infantil: revisão de literatura. *Pediatr Mod.* 2008 jul/ago; 44(4):162-6.
12. Pinho MCG. Trabalho em equipe de saúde: limites e possibilidades de atuação eficaz. *Ciênc Cogn.* 2006; 8:68-87.
13. Rezende MB. O brincar e a intervenção da Terapia Ocupacional. In: Drummond AF, Rezende MB, organizadores. *Intervenções de Terapia Ocupacional.* Belo Horizonte: Editora UFMG; 2008. p. 25-44.
14. Bortolote GS, Bretãs JRS. O ambiente estimulador ao desenvolvimento da criança hospitalizada. *Rev Esc Enferm USP.* 2008; 42(3):422-9.
15. Dahdah DF, Frizzo HCF. A terapia ocupacional no contexto de hospitalização infantil. *Prát Hosp.* 2009 nov/dez; 11:70-9.
16. Rezende M. O brincar sob a perspectiva da terapia ocupacional. In: Carvalho A, Salles F, Guimarães M, Debortoli J. *Brincar (es).* Belo Horizonte: Editora UFMG; 2009. p. 51-63.
17. Hansen J, Macarini SM, Martins GDF, Wanderlind FH, Vieira ML. O brincar e suas implicações para o desenvolvimento infantil a partir da psicologia evolucionista. *Ver Bras Cresc Desenv Hum.* 2007; 17(2):133-43.
18. Domingues ACG, Martinez CMS. Hospitalização Infantil: buscando identificar e caracterizar experiências de terapia ocupacional com crianças internadas. *Car Ter Ocup. UFSCar.* 2001; 9 (1):16-29.