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Relato de Caso

SÍNDROME CONGÊNITA DO ZIKA VÍRUS E DESFECHOS NUTRICIONAIS: RELATO DE CASO

CONGENITAL ZIKA VIRUS SYNDROME AND NUTRITIONAL OUTCOMES: CASE REPORT

SÍNDROME CONGÉNITO POR EL VIRUS DEL ZIKA Y RESULTADOS NUTRICIONALES: REPORTE DE UN CASO

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RESUMO

Introdução: Embora a avaliação nutricional de crianças com síndrome congênita do Zika vírus (SCZ) ainda não seja vista como uma prioridade, enfatizamos por meio deste estudo de caso a necessidade de incorporar a abordagem nutricional à prática clínica na Atenção Primária a Saúde (APS). Objetivo: Este trabalho objetiva relatar um caso de SCZ com microcefalia, descrevendo desfechos clínicos, laboratoriais e nutricionais. Métodos: Trata-se de um estudo descritivo do tipo relato de caso de uma criança diagnosticada com microcefalia associada à infecção congênita pelo vírus Zika. Os dados secundários para o estudo foram obtidos dos sistemas de informação, dos prontuários da equipe multiprofissional dos Núcleos de Apoio à Saúde da Família (NASF), dos relatórios médicos e da equipe de saúde da rede municipal que acompanhou o caso. Resultados: O estado nutricional depletou após ingestão nutricional inadequada, culminando em desnutrição grave. A criança apresentou melhora na evolução nutricional após gastrostomia e adequação da alimentação. Conclusões: Assim, o suporte nutricional adequado e o atendimento multiprofissional podem minimizar os prejuízos no crescimento e desenvolvimento de crianças com SCZ, bem como prevenir deficiências nutricionais, tanto em falta quanto em excesso, e promover uma melhor qualidade de vida.

Palavras-Chave

Infecção por Zika vírus, Transtornos da Nutrição do Lactente, Estado Nutricional, Desnutrição.

ABSTRACT

Introduction: Although nutritional assessment of children with congenital Zika syndrome (CZS) is not yet seen as a priority, we emphasize through this case study the need to incorporate the nutritional approach into clinical practice in primary health care. Aim: This paper aims to report a case of SCZ with microcephaly, describing clinical, laboratory and nutritional outcomes. Methods: This is a descriptive case report study with one child diagnosed with microcephaly associated with congenital Zika virus infection. Secondary data for the study were obtained from the information systems, the medical records of the multiprofessional team of the Family Health Support Centers (NASF), medical reports and the health team of the municipal network that accompanied the case. Results: The nutritional status depleted after inadequate nutritional intake, culminating in severe malnutrition. The child showed improvement in nutritional evolution after gastrostomy and adjustment of food

Keywords

Zika Virus Infection, Infant Nutrition Disorders, Nutritional Status, Malnutrition

intake. Conclusions: Thus, adequate nutritional support and multiprofessional care can minimize impairment in the growth and development of children with SCZ, as well as prevent nutritional deficiencies, both lack and excess, and promote a better quality of life.

RESUMEN

Introducción: Si bien la evaluación nutricional de los niños con síndrome congénito por el virus del Zika (SCZ) aún no es vista como una prioridad, se enfatiza, a través de este estudio de caso, la necesidad de incorporar el enfoque nutricional a la práctica clínica en la Atención Primaria de Salud (APS). Objetivo: Este artículo tiene como objetivo reportar un caso de SCZ con microcefalia, describiendo los resultados clínicos, de laboratorio y nutricionales. Métodos: Se trata de un estudio descriptivo tipo reporte de caso de una niña con diagnóstico de microcefalia asociada a infección congénita por el virus Zika. Los datos secundarios para el estudio fueron obtenidos de los sistemas de información, de las historias clínicas del equipo multidisciplinario de los Centros de Apoyo a la Salud de la Familia (CAF), de los informes médicos y del equipo de salud de la red municipal que acompañó el caso. Resultados: El estado nutricional empobreció luego de una ingesta nutricional inadecuada, culminando en desnutrición severa. La niña mostró mejoría en la evolución nutricional tras la gastrostomía y adecuación de la alimentación. Conclusiones: Así, un adecuado soporte nutricional y una atención multidisciplinar pueden minimizar los daños en el crecimiento y desarrollo de los niños con SCZ, así como prevenir carencias nutricionales, tanto en exceso como en exceso, y promover una mejor calidad de vida.

Palablas Clave

Infección por el Virus Zika, Trastornos de la Nutrición del Lactante, Estado Nutricional, Desnutrición.

INTRODUCTION

Zika virus infection during pregnancy directly impacts child health (1). Congenital Zika Virus Syndrome (CZS) consists of a broad spectrum of neurological sequelae associated with maternal Zika virus infection, with or without microcephaly (2).

Some manifestations associated with CZS in child health and nutrition are lack of swallowing coordination, causing dysphagia and digestive tract motility abnormalities, such as gastroparesis and gastroesophageal reflux. These manifestations suggest possible development of nutritional deficiencies, with repercussions on a worse nutritional prognosis and impact on life quality. Given these manifestations, the assessment and monitoring of nutritional status become extremely necessary (1).

The lack of recommendations for nutritional assessment and follow-up ignores the fact that various nutritional deficiencies can produce congenital malformations (3). In addition, the absence of the nutritional approach causes attention and care deprivation, compromising child growth and development (4). Thus, due to the lack of studies reporting nutritional assessment in newborns with CZS, the aim of the present study was to report a case of CZS with nutritional microcephaly, describing nutritional outcomes.

METHODS

This is a descriptive case report study conducted in September and October 2018, with a child diagnosed with microcephaly associated with congenital Zika virus infection in a city in the interior of Minas Gerais, Brazil. Data from the information systems were used: Notification Disease Information

System (SINAN), Live Birth Information System (SINASC) and Public Health Event Record (RESP-Microcephaly) and the record of the multiprofessional team of the Family Health Support Centers (NASF), which has the professional nutritionist. The data collected relating to pregnancy, prenatal care, birth and postnatal care were obtained from municipal health network services.

The data extracted from SINAN were: socioeconomic, demographic and clinical variables of the mother (age; date of first prenatal care; education; occupation; number of previous pregnancies and abortions). Demographic, anthropometric and clinical data on newborn were collected in the SINASC system (sex; gestational age in weeks; head circumference at birth in centimeters; chest circumference in centimeters; birth weight in grams; length at birth in centimeters; moment of detection of microcephaly; type of birth; number of prenatal consultations; and month in which prenatal care began). In the RESP-Microcephaly system, we obtained the results of laboratory tests for the mother and newborn (serological markers and antigen detection for Dengue, Chikungunya, Zika and STORCH; and signs detected in the newborn through imaging tests). Data relating to the monitoring and evolution of the newborn's nutritional status were collected by the nutritionist who makes up the NASF team. They are: weight, height and Body Mass Index (BMI) in nine consultations carried out after birth.

This report was authorized by the guardian of the municipality's information and the legal guardian of the child's custody, who signed the Informed Consent Form (ICF) after presenting the report. Throughout the process, confidentiality of information was guaranteed. This study was approved by the Human Research Ethics Committee Sylvio Miguel of the Centro Universitário de Viçosa (Univiçosa), under number 3.528.830.

Gestational History

This is about a teenager, in her second pregnancy, from a city in the interior of Minas Gerais, in the Southeast region of Brazil. Her prenatal period was uneventful until the end of October 2016, when, at 33 weeks of gestation, an ultrasound was performed, detecting ultrasound findings corresponding to microcephaly of the fetus.

The results of this exam indicated that it was a single pregnancy, with a cephalic presentation, with left back, active movements and rhythmic heartbeat, and a reduction in the head circumference proportional to the other measurements; fetal weight of approximately 1,930 g, varying around 10%, placenta inserted anteriorly, with zero / I degree of maturation, amniotic fluid in physiological quantity.

There was no history of travel for the patient outside the state of Minas Gerais in recent years, but had sexual contact with her partner, who works with interstate travel.

The pregnant woman was healthy and without complaints during the ultrasound procedures. No immunodeficiency, autoimmune diseases, and any pre-existing diseases were reported. In addition, did not report taking any medication, but there was the consumption of alcohol and smoking during pregnancy.

The baby was born at 40 weeks of gestation and had a real head circumference of 28 cm. Laboratory confirmation of Zika virus infection was performed at birth with umbilical cord blood. The IgG test for Zika was performed by the ELISA method. The test result was reagent (value: 208.4 UR / mL).

Four weeks after birth, the child underwent computed tomography of the skull, which showed a volumetric reduction of the cerebral parenchyma, with significant reduction of the periventricular white matter and multiple (intraparenchymal) calcifications, without edema or mass effect distributed in the cerebral parenchyma. It presented slight prominence of the ventricular cavity.

RESULTS

The study child is a female with birth weight of 2,735 g and 44 cm in length, classified as appropriate for gestational age (AGA) according to Lubchenco et al. (1963) (5). The classification at birth according to WHO 2006 was: age-appropriate weight in the W/A index, short stature for age in the H/A index, and eutrophic in the BMI/A index.

The nutritional monitoring with the nutritionist of the Basic Health Unit (BHU) of the municipality began at four months and eleven days of age. In this first contact it was found that the mother was resistant to offer breast milk. Thus, to ensure the correct development of the child, the nutritionist indicated the use of infant formula for infants up to 6 months, to meet their energy and nutritional needs.

After the first two months of nutritional follow-up, with the child already six months old, the milk formulation was changed according to the age group and the recommendations for the condition. In addition, the mother was instructed about the importance of introducing complementary feeding to help the child's good development and how to start feeding, being given a support material containing what to offer, when to offer, quantities to offer and replacement lists to help the mother and family.

After the first three follow-ups, the mother did not return to the UBS, seeking the service again when the child was 1 year and 3 months old. At this time, it was detected that the child's diet consisted

only of the formula recommended for up to 12 months, with no food supplementation as directed. In this episode, a new orientation was conducted regarding the need to introduce complementary feeding. This approach was also unsuccessful as after the fortnight after the last nutritional follow-up, the child came to the BHU for emergency medical care, with an even lower weight and signs of hypoglycemia. Due to severe malnutrition and clinical signs of dehydration, the child was hospitalized.

In the first two weeks of hospitalization, infant formula was offered according to age, associated with complementary feeding. However, as the expected weight gain was not observed, the hospital's nutrition team began to monitor the child's mealtime, and found that the family insisted on offering only infant formula and refused complementary feeding.

As the child already had complications related to CZS and experienced severe malnutrition. Thus, the child underwent the gastrostomy procedure. The diet used had a caloric density of 1.5 kcal/mL. On the day after hospital discharge, after 85 days of hospitalization, nutritional care for the child was resumed and, at that time, the child was within normal anthropometric parameters. One month after hospital discharge, the diet was replaced by one with caloric density of 1 kcal/mL due to good weight recovery.

The weight, height and BMI values of the nine consultations performed at the BHU since birth are shown in table 1 and the evolution of anthropometric parameters can be observed in table 2 (see Table 1 and Table 2).

Table 1. Weight, height and BMI values of a child with Congenital Zika Virus Syndrome (CZS) at each nutritional consultation.

Nutritional Consultation	Weight (Kg)	Height (cm)	BMI (Kg/m²)
1	3,90	54,0	13,4
2	5,15	61,0	13,8
3	5,00	62,0	13,0
4	5,60	66,0	12,9
5	5,69	69,0	12,0

6	5,55	69,0	11,7
7	8,45	70,0	17,2
8*	10,25	71,0	20,3
9	11,35	72,0	21,9

Caption: * Consultation after hospital discharge.

Table 2. Nutritional evolution of a child with Congenital Zika Virus Syndrome (CZS) from anthropometric indices.

Number of consultations	Age	W/A	H/A	W/H	BMI/A
1	4 months 11 days	-7,23	-9,93	-1,06	-1,75
2	6 months 26 days	-5,91	-7,73	-1,97	-1,32
3	7 months 19 days	-6,07	-7,42	-2,79	-2,10
4	1 year 1 month 17 days	-5,44	-6,16	-3,07	-2,26
5	1 year 3 months 5 days	-5,35	-5,21	-3,84	-3,21
6	1 year 3 months 28 days	-5,49	-5,21	-4,10	-3,52
7	1 year 6 months 20 days	-2,43	-4,90	0,38	1,25
8	1 year 7 months 30 days	-0,78	-4,58	2,16	2,97

9	1 year 9 months 5 days	0,05	-4,27	2,95	3,79

W/A - Weight for age; H/A - Height for age; W/H - Weight for height and BMI/A - BMI for age. Reference: WHO, 2006.

DISCUSSION

Malnutrition in patients with neurological impairment can be explained by nutritional and non-nutritional aspects, as pointed out by the study by Herrera-Anaya et al. (2016) (6). Among these factors, some were observed in the case study, such as dysphagia, which was characterized by the difficulty in the process of breastfeeding and complementary feeding, resulting in gastrostomy.

The child was born suitable for gestational age (AGA), but this condition was not maintained. The child presented very low weight for age, which was only reverted after gastrostomy. The impairment of linear development and growth is notorious. Even with nutritional support, severe deprivation early in life resulted in very short stature for age.

Nutrition is known to be decisive for progressive linear growth in childhood. Height deficit is a marker of past malnutrition, which is probably due to the influence of Zika virus infection, with the presence of neurological malformation and poor diet (7). Thus, overweight and obesity are observed in the W/H and BMI/A indexes, since the child has short stature. Dos Santos et al. (2019) (8), when assessing the nutritional status of children with CZS at 12-23 months, found that most evaluations of W/A, BMI/A and W/H indices were within the adequacy parameters.

Prata-Barbosa, Martins, Guastavino, & da Cunha (2019) (9) point out a directly proportional relationship of postnatal growth deficit in children with CZS with the degree of neurological impairment. The growth deficit is multicausal, including intrauterine malnutrition, lack of breastfeeding until six months, late or inadequate introduction of complementary feeding and impaired nutrient absorption (10). Inadequate diet, however, is one of the main factors related to height deficit in children with some type of neurological impairment (9).

Given these adverse conditions, the Catch up, a phase characterized by the resumption of growth after delayed by intrauterine containment, may provide a postnatal growth acceleration greater than the genetic tendency (9). Although Moura da Silva et al. (2016) (11) in their study observed low length

maintenance at eight months in children with probable CZS, there are few studies in the literature showing that height impairment in this population cannot be minimized during the catch-up period.

Monitoring nutritional status with simple dietary interventions can reduce health impact and provide better life quality for children exposed to intrauterine Zika virus infection and their families. This monitoring can be performed closely by Primary Health Care (PHC), because the proximity to the community allows, through home visits, for example, to assist in the care of the specificities and singularities of each location so the children and their family's needs are fully cared for (12).

In addition to nutritional issues, such as the presence of dysphagia, the lack of care required by a child with nervous system impairment and abandonment by the family hampered the implementation of care requested by the nutritionist. The difficulty of understanding and acceptance of the family about the child's health condition and the specificities caused by the disease may have been an important factor for the lack of timely and appropriate intervention and, thus, damage to health and nutrition, with a lifetime consequence. In this sense, we reinforce the need for family support actions for the arrival of a child with congenital alterations, such as microcephaly, given the stigma, blaming and discrimination that favor, in some cases, the removal of care (13).

Donateli et al. (2017) (14), when assessing health surveillance in the Zona da Mata mining region, where the municipality in question is located, found an intermediate action, which presents a fragmented and poorly resolved health care. Thus, integrating public health services is essential to guarantee the population full health care. In this perspective, actions to integrate endemic control agents (ACE) together with community health agents (ACS) are also necessary as key actors for the control and reduction of health risks in the territory (15).

As strengths, this case study points to the importance of monitoring and nutritional evolution of pregnant women infected by arboviruses and children with congenital Zika virus syndrome, whose impairment, mainly nutritional, has serious consequences for health and quality of life and which therefore, need better nutritional and health assistance. As a limitation, we highlight the fact that this is just one case, which does not allow the generalization of the findings.

CONCLUSION

As a learning point, this case demonstrates the relevance of nutritional care closer to the community as a fundamental condition for maintaining and promoting health and quality of life. The inclusion of

nutritional assistance in the Primary Health Care routine is essential for health care, especially in situations of greater vulnerability where early detection of nutritional risk is a priority.

In this case, individualized and specialized nutritional attention was essential for the recovery of the nutritional status of a child affected by Congenital Zika Virus Syndrome. Problems related to food consumption, whether due to Zika virus infection or family care, can cause further damage to the child's growth and development.

Thus, it is necessary to include nutritional support as part of neonatal care in health services, especially in cases of CZS, so that there is early identification of children at nutritional risk.

REFERENCES

1. Leal, M. C., van der Linden, V., Bezerra, T. P., de Valois, L., Borges, A. C. G., Antunes, M. M. C., Brandt, K. G., Moura, C. X., Rodrigues, L. C., & Ximenes, C. R. (2017). Characteristics of dysphagia in infants with microcephaly caused by congenital zika virus infection, Brazil, 2015. *Emerging Infectious Diseases*, *23*(8), 1253–1259. https://doi.org/10.3201/eid2308.170354

2. Brasil. (2017). Orientações integradas de vigilância e atenção à saúde no âmbito da Emergência de Saúde Pública de Importância Nacional : procedimentos para o monitoramento das alterações no crescimento e desenvolvimento a partir da gestação até a primeira infância, rela. In: http://portalarquivos.saude.gov.br/images/pdf/2016/dezembro/12/orientacoes-integradas-vigilancia-atencao.pdf

3. Cruz, R. de S. B. L. C., Filho, M. B., Caminha, M. de F. C., & Souza, E. da S. (2016). Protocolos de atenção pré-natal à gestante com infecção por Zika e crianças com microcefalia : justificativa de abordagem nutricional. *Revista Brasileira de Saúde Materno Infantil*, *16*(1), 103–110. https://doi.org/10.1590/1806-93042016000S100008.

4. Lima, D. B., Fujimori, E., Borges, A. L. V., & Silva, M. M. S. Da. (2011). Prática alimentar nos dois primeiros anos de vida. In *Revista da Escola de Enfermagem da USP* (Vol. 45, Issue spe2). https://doi.org/10.1590/S0080-62342011000800012

5. Lubchenco, L. O., Hansman, C., Dressler, M., & Boyd, E. (1963). Intrauterine growth as estimated from liveborn birth-weight data at 24 to 42 weeks of gestation. *Pediatrics*, *32*(5), 793–800. https://doi.org/10.1542/peds.102.1.S1.237

6. Herrera-Anaya, E., Angarita-Fonseca, A., Herrera-Galindo, V. M., Martínez-Marín, R. D. P., & Rodríguez-Bayona, C. N. (2016). Association between gross motor function and nutritional status in children with cerebral palsy: a cross-sectional study from Colombia. *Developmental Medicine and Child Neurology*, *58*(9), 936–941. https://doi.org/10.1111/dmcn.13108

7. Brasil. (2002). Saúde da Criança - Acompanhamento do crescimento e desenvolvimento infantil. Série Cadernos de Atenção Básica (Vol. 54). Brasília: Ministério da Saúde. Secretaria de Políticas de Saúde. Departamento de Atenção Básica. Retrieved from

http://bvsms.saude.gov.br/bvs/publicacoes/crescimento_desenvolvimento.pdf

8. Santos, S. F. M., Soares, F. V. M., de Abranches, A. D., da Costa, A. C. C., Moreira, M. E. L., & de Matos Fonseca, V. (2019). Infants with microcephaly due to ZIKA virus exposure: nutritional status and food practices. Nutrition Journal, 18(1), 4. https://doi.org/10.1186/s12937-019-0429-3

9. Prata-barbosa, A., Martins, M. M., Guastavino, A. B., & da Cunha, J. L. A. (2019). Effects of Zika infection on growth. Jornal de Pediatria, 95, 30–41. https://doi.org/10.1016/j.jpedp.2018.10.005

10. Sawaya, A. L. (2006). Desnutrição: consequências em longo prazo e efeitos da recuperação nutricional. Estudos Avançados, 20(58), 147–158.

11. Moura da Silva, A. A., Ganz, J. S. S., Sousa, P. da S., Doriqui, M. J. R., Ribeiro, M. R. F. C., Queiroz, R. C. de S., Brito e Alves, M. T. S. S. (2016). Early Growth and Neurologic Outcomes of Infants with Probable Congenital Zika Virus Syndrome. Emerging Infectious Diseases, 22(11), 1953–1956.

12. Brasil (2016). Zika: abordagem clínica na atenção básica. Ministério da Saúde. Secretaria de Vigilância em Saúde. Secretaria de Atenção à Saúde. Brasília, 2016. 72p.

13. Vale, P. R. L. F. Experiências de famílias de crianças com microcefalia por Zika vírus. 2018. Dissertação (Mestrado em Saúde Pública) – Universidade Estadual de Feira de Santana, Feira de Santana - Bahia.

14. Donateli, C. P., Avelar, P. S., Einloft, A. B. do N., Cotta, R. M. M., Costa, G. D. da. Avaliação da Vigilância em Saúde na Zona da Mata Mineira, Brasil: das normas à prática. Ciênc. saúde coletiva [Internet]. 2017; 22(10): 3439-3455. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232017021003439&lng=en. http://dx.doi.org/10.1590/1413-812320172210.18252017.

15. Donateli, C.P; Einloft, A.B.do N.; Coutinho-Junior, A.L.; Cotta, R.M.M.; Costa, G.D.da (2019) Endemic Disease Control Agents' perception on the fight against Aedes aegypti and the prevention of arbovirus infections in Brazil. PLoS Negl Trop Dis 13(10): e0007741. https://doi.org/10.1371/journal.pntd.0007741

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