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Digestive Intolerance in Childcare Centers from the Perspective of Nursing Science

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Abstract

Introduction

Daycare centers are environments where children learn habits, including eating habits. Food intolerances occur when the body reacts to foods that cannot be fully or partially assimilated. Food allergies arise from a specific immune response induced by exposure to a food. In daycare centers, nursing staff play a key role in holistically achieving early identification and dietary management.

Objective

To analyze the actions that nursing staff can take in daycare centers to prevent or optimally manage any digestive intolerances that may arise.

Development

A healthy diet adapts to the cultural and social circumstances and different tastes of each individual. There are several types of food intolerances that are described from different etiologies. Allergies are the result of complex genetic and environmental interactions. Nursing staff must maintain systematic and up-to-date training on food preparation to ensure hygiene standards and food control.

Conclusions

Nursing staff in preschool-aged children's centers will need to maintain ongoing education for staff members with a proactive approach focused on education, prevention, and follow-up. Nursing work will always be a fundamental pillar of health.

Keywords: digestive intolerance; children under five years of age; Nursing; health education; food allergies.

Introduction

With the formation of a new society in Cuba, participation was necessary, and the presence of women in each of the actions was fundamental to this end. Mothers are generally responsible for the care of their children, and how could women join the social work and frontlines available? On April 10, 1961, childcare centers emerged, marking one of the most significant steps in enabling women to participate in the diverse tasks they had to undertake, confident that their children would not be left without attention and that their education would be guaranteed as the fundamental objective. **[1]**

Daycare centers are environments where children learn habits, including eating habits. They are exposed to new foods that are gradually introduced, but which often differ in the way they are served and cooked from their home habits. This often increases the risk of digestive intolerances. These digestive intolerances are often mistaken for allergies. Symptoms such as diarrhea, bloating, or irritability are generated, which can affect the child's quality of life and family dynamics. It is a common health problem in daycare centers, with nutritional, immunological, and psychosocial implications.

Food intolerances occur when the body reacts to foods that cannot be fully or partially assimilated. They usually appear at an early age and, in some cases, may disappear over time. These affect each individual differently, and ignorance of them can affect the sufferer's health in the long term. Among the foods that most commonly cause intolerances are those that include eggs, chocolate, milk, bread, tomatoes, or shellfish. **[2]**

Food allergies arise from a specific immune response induced by exposure to a food. Allergic reactions to food are a problem of growing pediatric interest due to their increased prevalence in recent decades, their onset in the first years of life, their personal and social impact (family, school) through the dietary restrictions they entail, and the frequency of adverse reactions due to inadvertent ingestion that cause symptoms of varying severity, but potentially serious (anaphylaxis). **[3]**

In daycare centers, nursing staff play a key role in holistically achieving early identification, dietary and interdisciplinary management, and educating parents and educators about this condition that may occur in children. In these centers, because more than ten children are usually gathered in the same room, cross-infections, trauma, food poisoning, and other complications frequently occur. This justifies the need to improve the health care offered in these centers to ensure the health of children. **[4]**

It should be recognized that sometimes these events arise, and there is insufficient information about them among caregivers and family members. The objective of this monograph is to analyze the actions that nursing staff can take in daycare centers to prevent or optimally manage digestive intolerances that may arise.

Development

It is pertinent to address the food situation that is proliferating among the population today, depending on their lifestyle. The fast-paced life, with rushing and very limited time, often leads to the consumption of fast food. In recent years, the consumption of ultra-processed foods has increased, and this creates certain problems as society has become accustomed to these products, making it difficult to change. **[5]**

A healthy diet adapts to the cultural and social circumstances and tastes of each individual, but it must be varied, balanced, sufficient, and adapted. **[6]** This category will be supervised by the nurses who work in these educational centers, whose primary focus is on food preparation, ensuring hygiene standards and their control, as well as establishing a diet that promotes adequate nutrition.

Similarly, the nurse will be responsible for identifying and guiding the patient toward an adequate diagnosis to determine food allergies or intolerances. Food intolerances are a group of adverse reactions to foods that do not involve the immune system.

The main cause is a partial or total deficiency of an enzyme that prevents the proper metabolism of certain substances present in food, the most common being lactose deficiency. The concomitant symptoms are primarily digestive and vary depending on the amount ingested and even over time. Treatment consists of eliminating or limiting the intake of the food in question and maintaining a balanced diet that ensures a sufficient supply of all nutrients.

There are several types of food intolerances, described from different etiologies. Enzymatic intolerances are those caused by the inability to metabolize certain substances present in food due to various enzyme deficiencies. This is the most common type of intolerance. **[7]**

- Lactose intolerance: A condition of the intestinal mucosa caused by the body's failure to produce (total or partial absence, primary or secondary) the enzyme lactase, failing to metabolize lactose properly. It can be due to congenital lactase deficiency, primary lactose intolerance (persistent), secondary intolerance, or acquired intolerance (reversible/temporary).
- Fructose intolerance: Hereditary fructose intolerance (fructosemia) is an autosomal recessive genetic disorder in which there is a deficiency of the hepatic fructose-1-phosphate aldolase (aldolase B). The incidence of this disease is estimated to be 1 in 20,000. Fructose ingestion, whether as a monosaccharide or disaccharide (sucrose), induces a clinical picture similar to galactosemia, with vomiting, hypoglycemia, seizures, and diarrhea, which precede the onset of jaundice, hepatomegaly, and ascites.
- Sorbitol intolerance: The intestinal absorption capacity of sorbitol is limited, and ingestion of large amounts (20–50 g) can cause osmotic diarrhea. In some healthy subjects, ingestion of 5 g leads to malabsorption and the onset of diarrhea and abdominal cramping. The prevalence of malabsorption ranges from 32 to 90% of cases after administration of a 10 g dose and can reach 100% after a 20 g dose. **[8]**
- Sucrose intolerance: Sucrose malabsorption is extremely rare worldwide. This disorder is inherited in an autosomal recessive manner due to a mutation in the gene encoding the enzyme sucrase-isomaltase (locus 3q25-q26). Symptoms usually appear in infancy and do not manifest until sucrose is included in the diet, usually with the introduction of fruit. It can also manifest at birth if the child is fed a formula containing sucrose.
- Galactose intolerance: Galactosemias, a disease secondary to the inefficient metabolism of this hexose and resulting in its accumulation in the body, can be due to deficiencies in one of the enzymes involved in its metabolism (galactokinase, uridine transferase, or 4-epimerase). The most severe and common form of these deficiencies, which generates the so-called galactosemia, is uridine transferase deficiency. It affects 1 in 40,000–60,000 newborns and manifests in newborns with symptoms that include anorexia, diarrhea, and growth retardation. If the condition is not detected early, liver and kidney damage, cataracts, and mental retardation can develop.
- Other intolerances: Less common diseases such as phenylketonuria, homocystinuria, or leucinosis, inborn errors of protein metabolism, could also be included here.

Food intolerances of pharmacological or chemical origin are due to abnormal reactions to substances present in certain foods (fermented cheeses, wine, chocolate, shellfish, spinach, among others). They are dose-dependent and require different cofactors, so they do not appear with every exposure to these

types of foods. The main substances involved in these types of reactions are vasoactive amines (histamine, tyramine, norepinephrine, phenylethylamine, tryptamine, serotonin, dopamine) and methylxanthines (caffeine, theophylline, theobromine), capasaicin, and alcohol. **[7]**

Food intolerances of undetermined cause are associated with technological development and changes in dietary habits. The population has increased its exposure to a wide variety of additives and contaminants, particularly present in processed foods. An additive is any substance intentionally added to foods or beverages without altering their nutritional value. **[7]**

If added for a specific purpose, it is considered a direct additive, such as aspartame used in beverages, yogurts, and other foods. Indirect additives are those that become part of the food itself, albeit in insignificant amounts, during handling, packaging, or storage. Direct additives include food colors, preservatives, antioxidants, acidity regulators, emulsifying agents, and stabilizers. **[7]**

Allergy is the result of complex genetic and environmental interactions. The prevalence of food allergy has increased exponentially in the last decade **[9];** however, this cannot be explained by genomic changes. It is suspected that environmental factors may influence epigenetic changes in specific genes. **[10]** Food allergy is the result of the timing, route, and dose of exposure to foods in susceptible patients. Risk factors may include:

1) Genetic Factors

- Family history of atopy. The risk of food allergy increases by 40% with one allergic first-degree relative and by 80% with two relatives. **[11]**
- Race/ethnic origin and gender. In the United States, food allergy is more common in boys, non-Hispanic Black children, and Asian. It should be noted that racial bias is often the predominant factor in these studies. **[12]**
- Personal history of atopy. Atopic dermatitis and asthma increase the risk of food allergy. **[13]**
- Specific genes. Loss-of-function mutations in filaggrin are independently associated with peanut allergy and atopic dermatitis, suggesting that the skin is the route of sensitization. **[14]**

2) Environmental Factors

From pregnancy, individuals are exposed to environmental factors derived from lifestyle, diet, and behavior. The term exposome describes the environmental exposures that an individual experiences.**[15]**

a) Prenatal factors: These include maternal age, number of children, maternal stress, maternal obesity, maternal antibiotic use, tobacco use, and pollutants. The intake of nutrients, supplements, and probiotics during pregnancy and breastfeeding decreases the likelihood of developing food allergies, as does the mother's folic acid intake.

b) Perinatal factors: Cesarean section, low birth weight, prematurity, perinatal stress, and the use of cow's milk in the first three days of life are predisposing factors for developing food allergies, while breastfeeding is a protective factor.

c) Postnatal factors: some factors can influence the appearance of food allergies such as the use of extensively and partially hydrolyzed formulas, introduction of cow's milk, Vitamin D deficiency, atopic dermatitis, emollients, exposure to inhaled and cutaneous allergens, prescription of antibiotics in the first year of life, proton pump inhibitors, Western diet, obesity and overweight, environmental pollution, contact with exotoxins, changes in intra and extramural lifestyle and activity patterns, contact with pets, overcrowding, passive smoking, vulnerable socioeconomic status. While early and varied weaning, polyunsaturated fatty acids, probiotics, and prebiotics are beneficial.

Considering both situations, the possibility of both allergies and intolerances, nurses working in daycare centers must be up-to-date on these issues and ensure proper and timely diagnosis. To this end, they must take a series of actions to facilitate this goal. The use of the knowledge, skills, and values inherent to the nursing profession in the care provided to children, their families, and other professionals working in these centers has far-reaching implications. **[16]**

Actions in this regard go beyond the state institution and must also address the possibility that, with the implementation of a new economic model in the country in this century, a new type of daycare center has emerged, in this case, the so-called private daycare centers. **[17]** This option for caring for children who cannot attend daycare centers is staffed by individuals who may be daycare center owners or employees, and who are not required to meet professional standards. Therefore, they may be homemakers, technicians, or professionals from different fields, who must be trained and supervised regarding the methods of feeding minors.

Based on the authors' experience, it is appropriate to conduct educational activities and initiatives with staff involved in the care of children under five years of age in these settings. Nursing staff should receive systematic and up-to-date training on food preparation to ensure hygiene standards and food control. Explain how the diet should be structured in conjunction with nutrition specialists, always emphasizing the importance of ensuring hygiene to avoid food poisoning.

It is important to implement educational interventions with special emphasis on proper nutrition and the management of gastrointestinal disorders and diseases that require therapeutic diets. Nursing staff will be responsible for supervising the food preparation process, monitoring established hygiene standards and the hygiene of utensils, advising the responsible staff (cooks and kitchen assistants), and ensuring that food sampling is carried out by established standards. This will also be covered in training sessions to ensure that other staff understand the importance of these actions.

Provide guidance on the procedures and handling of food preparation, which must be carried out comprehensively and uniquely at the institutional level, as an element that guarantees hygiene and prevents the occurrence of food poisoning and intestinal parasitism, the latter a common cause in institutions for young children.**[18]** Guidance should be provided on how to proceed in any case of suspected food poisoning and how to report it to the nearest health institution, depending on the severity of the event.**[19]**

Another aspect that must be constantly addressed is that related to personal hygiene, the use of appropriate clothing and protective equipment such as a face mask and cap, handwashing according to established protocols, ventilation, management of liquid waste, and food handling. **[19]** With the evolution of new scientific knowledge and the adoption of other theories that also relate to the environment, the need to provide standardized, understandable, and practical recommendations on the nutrition of these children has been demonstrated. This aspect can be brought to the attention of the child's parents and family members. **[20,21]**

The role of nursing staff in minimizing the effects of digestive intolerance or food allergies in childcare centers for children under five years of age is unquestionable. The preventative work that must be carried out will be arduous, but it will guarantee the intestinal health of these children.

Conflicts of Interest

The authors declare no conflicts of interest.

Conclusions

Nursing staff in preschool-aged children's centers must maintain ongoing education for staff members with a proactive approach focused on education, prevention, and follow-up. Nursing work will always be a fundamental pillar of health.

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