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ASSESSMENT OF KNOWLEDGE AND SUSCEPTIBILITY OF ALLERGIES IN STUDENTS BORN BY C SECTION IN THE HEALTH CAMPUS OF FACULDADE LEÃO SAMPAIO

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Abstract: About 1 trillion microorganisms inhabit our organism, exhibiting several fundamental functions in health, a set called normal microbiota. The first microorganisms received come from the mother when passing through the vaginal canal at childbirth. Knowledge about this microbiota is important to understand infectious diseases and their maintenance is subject to physical, chemical, immunological changes, among other factors. It is inferred that the biggest challenges facing a possible epidemic of food allergy today are related to the type of delivery, lack of breastfeeding and exposure to antigens. Objective: To relate the occurrence of cases of allergies in people born in cesarean deliveries and to report the knowledge of students in the health area about this relationship. Materials and methods: The work represents a quantitative field research through questionnaires applied at the Centro Universitário Doutor Leão Sampaio, Campus Saúde, with a sample of 288 students from the courses of Biomedicine, Dentistry, Physical Education and Nursing, random semesters, in the morning and evening shifts, on October 25 and 26, 2017. Results and Discussion: Data obtained show a prevalence of "No" answers when asked about knowing the relationship between type of delivery and allergies. If seen by the type of delivery, the study is relevant, because in the occurrence of allergies since childhood, 40.22% of cesareans and 28.68% of normal births fit. On the other hand, a key factor for the constitution of an individual's normal microbiota, which is the interaction with the environment, was not disregarded in the study. 123 people reported having had contact with the environment in childhood, out of a total of 133, and the rest said no. Conclusion: It is concluded that the problem of the normal microbiota of the interviewees is more related to problems developed before the moment of direct interaction with the

environment, possibly during childbirth and the first years of life.

Keywords: Microbiology; Normal microbiota; Cesarean; Normal birth; Allergy.

INTRODUCTION

In a microscopic world there are about 1 trillion small microorganisms that inhabit the eyes, ears, intestines and skin of human beings, these unicellular organisms exhibit different and diverse functions that play an important role in our health, the set of these beings that live on the outside. or within a host is called the human microbiota and its genes are called the human microbiome (KNIGHT; BUHLER, 2016).

The first microorganisms we receive come from the mother through childbirth when passing through the vaginal canal, before that the mother's microbiota has already been preparing itself by modifying itself for the need to pass the expected species to the baby, such as lactobacilli, even the population of the intestine changes during pregnancy, the physiological idea of the mother's body is to cover the baby with a protective layer against the external environment after birth. In cesarean deliveries, the specific populations for the birth are left in the mother, thus, in the long term, it may or may not cause small differences in the child's health such as allergies or low body weight (KNIGHT; BUHLER, 2016).

Knowledge about the normal microbiota that makes up the different areas of the body is of great importance to understand about bacterial and fungal infectious diseases, the microbiota is distributed through the parts of the body that are or are not in contact with the external environment, that is, skin and mucous. The maintenance of these populations is subject to physical, chemical, immunological changes, as well as many microbiological factors that are poorly elucidated. There is a relationship between host and microorganisms where an ecosystem is composed of numerous niches, each inhabited by microorganisms most adapted to that region (TORTORA; FUNKE; CASE, 2002).

One of the most important functions of the microbiota is to protect against colonization by potentially pathogenic microorganisms. Anaerobic microorganisms are the main beings involved in this process, which is related to competition for substrates, colonization sites and the production of organic acids, which inhibit the growth of most pathogens (PALONE, 2013).

Food allergy is characterized by an adverse reaction to the ingestion of food, or food additives, mediated by immunological mechanisms (CHAPMAN et al., 2006). The foods most involved in this process are: cow's milk, egg, wheat, soy, seafood, fish, peanuts and nuts. It is assumed that allergic reactions to food affect children under 3 years of age whose symptoms have become more severe and more persistent (NOWAK-WEGRZYN; SAMPSON, 2006).

Children represent the segment most susceptible to allergic and infectious manifestations, although there are no official data on the incidence of food allergy in Brazil, there are genetic and environmental relationships when it comes to allergies, among environmental factors, changes in the microbiota stand out. intestinal (overuse of antibiotics, gastric acid inhibitor drugs, increase in cesarean births); low rates of breastfeeding and late offering of solid foods to children (LUYT et al., 2014).

It is inferred, however, that the biggest challenges facing a possible epidemic of food allergy today are related to the type of delivery, lack of breastfeeding and exposure to antigens. Starting from the observation that children are born free of germs and that

colonization begins immediately after birth, it is understood that this process is influenced by the type of delivery. In normal delivery, the colonization of the newborn has as the natural source the maternal intestinal microbiota, which beneficially "contaminates" it, which does not occur during cesarean surgery. Therefore, normal delivery has advantages in preventing the risks of allergies, autoimmune diseases and celiac and inflammatory bowel disease. Another important preventive factor is the practice of exclusive breastfeeding (POMIESCINSKI et al., 2010; PENDERS et al.,

The main components of human milk that act as a protective factor against infections and allergies are: lymphocytes (memory T cells) and macrophages, polymeric human milk immunoglobulin IgA, the composition of polyunsaturated fatty acids and polyamines, in addition to immunomodulatory and anti-inflammatory factors. -inflammatory (lactoferrin, IgM, IgG and IgA antibodies, neutrophils, cytokines) and growth factors, which probably protect against allergic sensitization during the period of breastfeeding and shortly after the end of breastfeeding (POMIESCINSKI et al., 2017; NEU; RUSHING, 2011).

DISCUSSION OF RESULTS

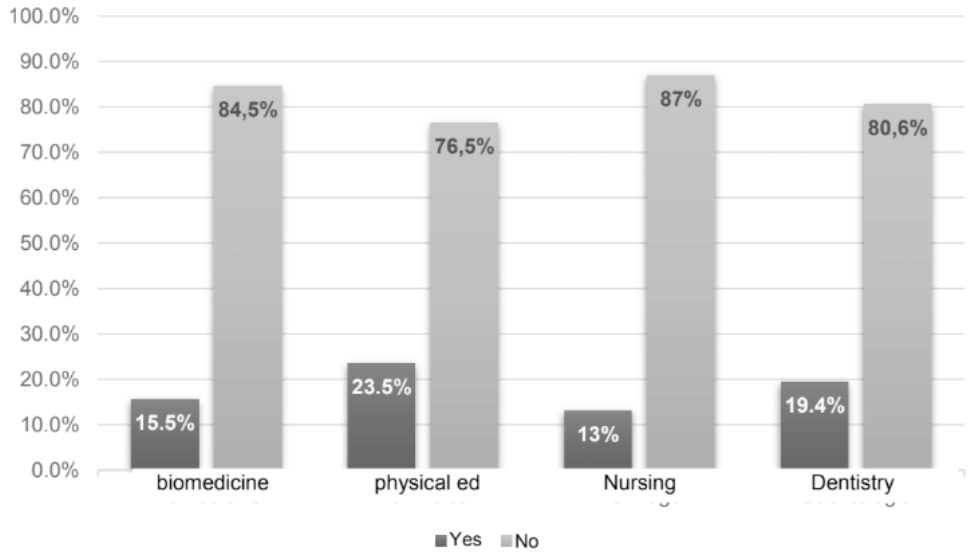
The data obtained show a prevalence of "No" answers, per course, when respondents were asked about knowing the relationship between type of delivery and allergies. The course that best recognized this correlation was Physical Education, where 20 of them answered "yes" (Graphic 1). As a percentage, the difference between the responses of all respondents is striking – approximately 80% for "No" and 20% for "Yes" (Graph 2).

An important piece of information is that in individuals who answered the questionnaire and claimed to be younger than 25 years, the prevalence of cesarean deliveries is greater, which demonstrates that the number of this type of delivery has currently increased compared to normal. In numbers, 36.5% said they were born by cesarean section between the ages of 25 and 35, while those under 25 correspond to no more than 41% (Graph 3). The difference to complete 100% of the sample is equivalent to ages above 35 years.

In a study by Rodrigues et al. (2016) it was found that a predominance of cesarean deliveries in relation to normal deliveries in all analyzed states, with an increasing number over the years and even more discrepant in states with higher HDI (Human Development Index). The author reports that more than half of births occur through the surgical procedure, different from what is recommended by the WHO (World Health Organization). It was also verified that this type of procedure is gradually being the most chosen as a form of delivery in Brazil, even among less developed states and, therefore, deficient in some resources that ensure the effectiveness of the procedure.

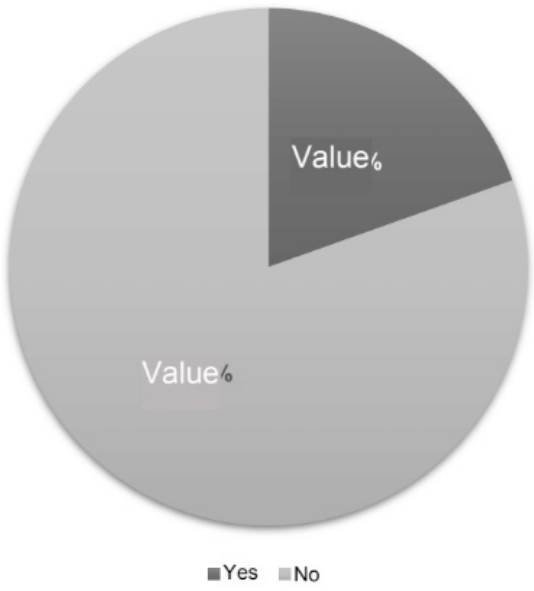
Furthermore, 62.63% of respondents who claimed to have had some type of allergy are female, while 37.37% are male. 92 of a total of 133 people claim to have diagnosed the cause of the allergy, but the remaining 41 do not (Graph 4). This last statement opens space for a questioning about the possibility that causes not directly diagnosed are associated with the type of delivery, and even those diagnosed may have some predisposition to allergy due to a cesarean section, for example.

Delivery by cesarean section and maternal atopy were the variables associated with a greater chance of developing CMPA (Cow's Milk Protein Allergy) in the group studied by Silva (2016). In the research in question, birth by cesarean section was significantly associated with CMPA and with an increased chance for the clinical phenotype of reactions



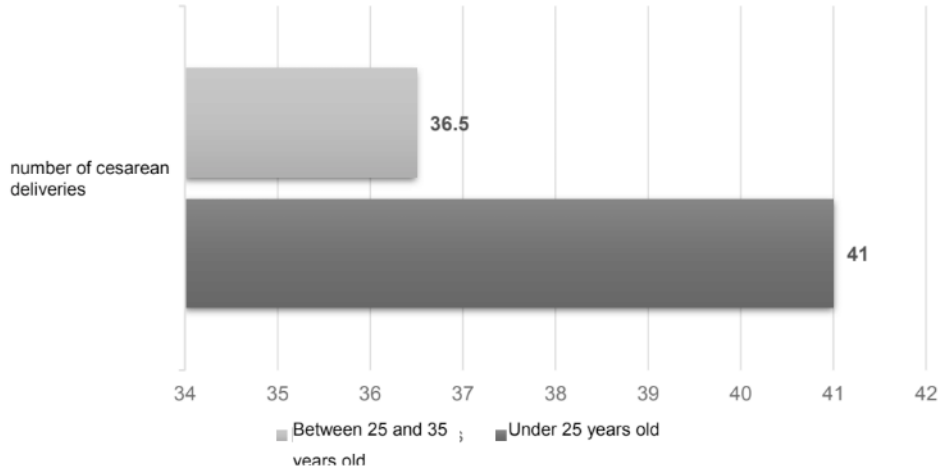
Graphic 1. Students' opinion on the relationship between the type of delivery and the occurrence of allergies.

Source: Research data.



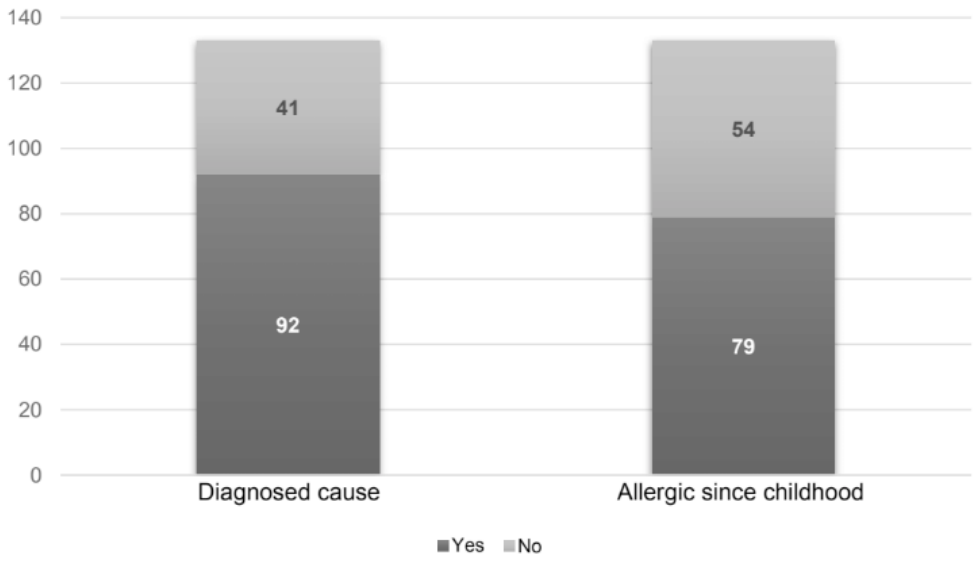
Graph 2. respondents born by cesarean section and knowledge about the relationship between childbirth and the occurrence of allergies.

Source:Research data.



Graph 3. occurrence of Cesarean deliveries by age.

Source:Research data.



Graph 4. allergic with a diagnosed cause and allergic since childhood.

Source:Research data.

ALLERGENS		
	Yea	No
CONTACT WITH THE ENVIRONMENT	123	10
DIAGNOSIS	92	41

Table 1. Number of allergic respondents who had contact with the environment and number of diagnosed.

Source:Research data.

possibly mediated by IgE. Through this type of delivery, there is a less frequent colonization by lactobacilli, Bifidobacterium and Bacteroides species, more frequently colonization by Clostridium difficile occurs. These changes in the intestinal flora can be noticed in the first days after birth, preceding clinical symptoms, thus suggesting a role in allergic diseases (NICOLAOU; TSABOURI; PRIFTIS, 2014).

If seen by the type of delivery, that is, a sample divided between the number of normal and cesarean deliveries, the study is relevant, if compared with the occurrence of allergies since childhood, since 79 people who claimed to have the allergy since they were children, as seen in graph 4, 40.22% of those born by cesarean section fit into this situation and of those born by normal deliveries, 28.68%.

In a 2016 study, which followed 459 children up to 36 months of age, it was possible to verify that children with at least one allergic parent and born by cesarean section were more likely to develop food allergy, when compared to children born through natural childbirth with non-allergic parents (PAPATHOMA et al., 2016).

On the other hand, a key factor for the constitution of an individual's normal microbiota, which is the interaction with the environment, was not disregarded in the study. 123 people reported having had contact with the environment in childhood, out of a total of 133, and the rest said no.

Genetic predisposition, short duration of the exclusive breastfeeding period, delivery through a surgical procedure and prematurity were associated with CMPA, corroborating that the environment may exert a potentially greater effect on the pathogenesis of this type of allergy (SILVA, 2016). This is because the maturation of a healthy intestinal flora early in life allows a balance in the population of CD4 T lymphocytes, favoring responses mediated by cells such as macrophages, while the imbalance of flora alters homeostasis, favoring a response mediated by eosinophils and mast cells (DI CONSTANZO; AMOROSO; CANANI, 2016).

When verifying these values and comparing with the prevalence of allergies by type of delivery, mentioned above, it is concluded that the problem related to the normal microbiota of the interviewees is more related to problems developed before the moment of direct interaction with the environment, possibly in the childbirth and in the first years of life. According to Knight's book; Buhler (2016) asserts the fact that people born by cesarean section deprive themselves of contact with the first microorganisms found in their mothers' genital tract, which proves the relevance of this study.

REFERENCES

CHAPMAN, A. et al. **Food allergy: a practiceparameter**. Annals of allergy, asthma&immunology, Illinois, v. 96, n. 3, 2006.

DI COSTANZO, M; AMOROSO, A; CANANI, R. B. **Gut microbiota as a target for food allergy.** Journal of pediatricgastroenterologyandnutrition, v. 63, n. 1S, p. S11-S13, 2016.

KNIGHT, R; BUHLER, B. **A Vida Secreta dos Microbios.** 1. ed. São Paulo: Alaúde, 2016. 136p.

LUYT, D. et al. **BSACI guideline for thediagnosisand management of cow'smilkallergy.**Clinical& Experimental Allergy, London, v. 44, n. 5, 2014.

NEU, J; RUSHING, J. **Cesarean versus vaginal delivery: long-terminfantoutcomesandthehygienehypothesis.**Clinics in perinatology, v. 38, n. 2, 2011.

NICOLAOU, N; TSABOURI, S; PRIFTIS, K. N. **Reintroduction of cow'smilk in milk-allergicchildren.**Endocrine, Metabolic&ImmuneDisorders-Drug Targets, v. 14, n. 1, p. 54-62, 2014.

NOWAK-WEGRZYN, A; SAMPSON, H. A. **Adverse reactionstofoods**. Medical Clinics, v. 90, n. 1, 2006.

PALONE, M. R. T. **Fatores Modificadores da Microbiota Gastrintestinal e sua Relação com Malformações Craniofaciais.** Revista da Faculdade de Ciências Médicas de Sorocaba, Bauru, v. 49, n. 11, 2013.

PAPATHOMA, E. et al. **Cesareansection delivery anddevelopment of food allergyandatopicdermatitis in earlychildhood.** PediatricAllergyandImmunology, v. 27, n. 4, p. 419-424, 2016.

PENDERS, J. et al. **Factorsinfluencingthecomposition of the intestinal microbiota in earlyinfancy**. Pediatrics, Illinois. v. 118, n. 2, 2006.

POMIECINSKI, F. et al. Sensitizationtofoods in gastroesophagealrefluxdiseaseand its relationtoeosinophils in theesophagus: is it of clinicalimportance?. Annals of Allergy, Asthma&Immunology, v. 105, n. 5, p. 359-363, 2010.

POMIECINSKI, F. et al. **Estamos vivendo uma epidemia de alergia alimentar?.** Revista Brasileira em Promoção da Saúde, Fortaleza, v. 30, n. 3, 2017.

RODRIGUES, J. C. T. et al. **Cesariana no Brasil: uma análise epidemiológica.** Revista Multitexto, v. 4, n. 1, 2016.

SILVA, S. A.. **Polimorfismos dos genes das citocinas regulatórias (IL-10 e TGF-β1), inflamatória (IL-4) e do receptor de vitamina D em relação aos fenótipos clínicos da alergia às proteínas do leite de vaca.** 2016. 586f. Tese (Doutorado em Saúde da Criança e do Adolescente) – Universidade Federal de Pernambuco, Recife, 2016.

TORTORA, G. J; FUNKE, B. R; CASE, C.L. **Microbiologia.**10. Ed. São Paulo: Artmed, 2002. 738p.