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RISK FACTORS OF FUNCTIONAL GASTROINTESTINAL DISORDERS IN INFANCY

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Abstract. *Introduction.* Functional Gastrointestinal Disorders (FGIDs) in infants and toddlers are a group of disorders with a variable combination of often age-dependent, chronic, recurrent symptoms in the absence of recognized organic pathology. These not only affect the well-being of the infant in both the short and long term, but can also cause distress for their families, can have long-term negative consequences, such as formation of chronic organic pathology of the digestive tract.

The aim of the study. To study and analyze the incidence of functional gastrointestinal disorders (FGID's) during infancy in children receiving different types of feeding.

Materials and methods. Examination of 92 patients aged 1-12 months (49 males and 43 females) with clinical manifestations of functional gastrointestinal disorders.

Results. Of the total 92 infants 69 (75,0%) were born at term, 23 (25,0%) infants – before 38 weeks of gestation. The nutritional characteristics of infants were as follows: 25 (27,17%) children were breastfed, 67 (72,83%) – formula fed. It was found that the most common manifestations of functional gastrointestinal disorders were: regurgitation, infant colic and functional constipation.

Conclusions. The study found that preterm birth, low birthweight along with early transition to formula feeding and starting complementary feeding before 6 months of age are risk factors of developing functional gastrointestinal disorders in infants.

Key words: functional gastrointestinal disorders, infants, type of feeding, risk factors.

Фактори ризику функціональних гастроінтестинальних розладів у дітей раннього віку
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Резюме. *Вступ.* Функціональні гастроінтестинальні розлади (ФГІР) у немовлят і дітей раннього віку – це група розладів із різноманітною комбінацією гастроінтестинальних, часто залежних від віку, хронічних, рецидивуючих симптомів за відсутності органічної патології травної системи. Вони не тільки впливають на самопочуття немовляти як у короткостроковій, так і в довгостроковій перспективі, але можуть мати довгострокові негативні наслідки у вигляді формування хронічної органічної патології травного тракту.

Мета дослідження. Вивчити та проаналізувати захворюваність функціональними гастроінтестинальними розладами (ФГІР) у дітей раннього віку в залежності від виду вигодовування.

Матеріали та методи. Обстеження 92 дітей віком від 1 до 12 місяців з явищами функціональних гастроінтестинальних розладів.

Результати досліджень. 69 (75,0%) дітей народилися доношеними, 23 (25,0%) – до 38 тижнів вагітності. Харчові характеристики немовлят були такими: 25 (27,17%) дітей перебували на грудному вигодовуванні, 67 (72,83%) – на штучному вигодовуванні.

Встановлено, що найчастішими проявами захворювання були регургітація, кольки та функціональні закрепи.

Висновки. Дослідження показало, що передчасні пологи, низька маса тіла при народженні разом із раннім переходом на штучне вигодовування та початком прикорму до 6-місячного віку є факторами ризику розвитку функціональних гастроінтестинальних розладів у немовлят.

Ключові слова: функціональні гастроінтестинальні розлади, діти раннього віку, вид вигодовування, фактори ризику

Introduction

Functional Gastrointestinal Disorders (FGIDs) in infants and toddlers are a group of disorders with a variable combination of often age-dependent, chronic, recurrent symptoms in the absence of recognized organic pathology [4,7]. During infancy, the structure and function of the gastrointestinal (GI) tract, the ner-

vous system and microbiota are still maturing and this may cause GI signs and symptoms that have no obvious structural or biochemical cause. [3] The etiology of these disorders remains uncertain and thought to be due to subtle alteration of the normal development or maladaptive behavioral response to a variety of internal or external stimuli [3]. Functional gastrointestinal disorders account for the largest percentage in the structure of pathology of the digestive system in young children. According to Rome IV criteria, reported prevalence rates of FGIDs in neonates and toddlers vary between 27–40.5% with the most prevalent disorders being infant regurgitation and functional constipation [4]. These not only affect the well-being of the infant in both the short and long term, but can also cause distress for their families, can have long-term negative consequences, such as formation of chronic organic pathology of the digestive tract [6].

The aim of the study

To study and analyze the incidence of functional gastrointestinal disorders (FGID's) during infancy in children receiving different types of feeding.

Materials and methods

Examination of 92 patients aged 1-12 months (49 males and 43 females) with clinical manifestations of functional gastrointestinal disorders, who were hospitalized to the early childhood department of Uzhhorod City Children's Clinical Hospital due to acute respiratory viral infection, deficiency anemia. FGIDs were assessed according to the Rome IV criteria. Anthropometric measurements, physical examination findings, nutritional status, risk factors, and symptoms related to FGIDs were evaluated using questionnaires.

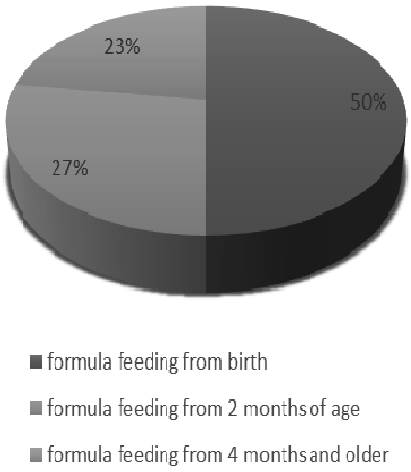
Results

Gestational age, mode of delivery, birth weight, use of antibiotics during the first week of life, and feeding pattern were taken into account in the study.

Of the total 92 infants 69 (75,0%) were born at term, 23 (25,0%) infants – before 38 weeks of gestation.

31 (33,7%) of all infants with FGID had low birth weight (<2500 g), in 5 (5,43%) of patients birth weight was classified as very low (<1500 g).

Nutritional characteristics of infants were as follows: 25 (27,17%) children were breastfed, 67 (72,83%) – formula fed. 33 (49,25%) of formula fed infants received artificial formula from birth and 18 (26,87%) patients were transitioned after the age of 2 months, 15 (22,39%) – at 4 months and older (picture 1). Instead of breast milk, all artificially fed children received modern, adapted, age-appropriate formula: 28 (41,79%) were fed an age-appropriate Hipp supplement, 39 (58,21%) - NAN. In 64 cases (69,56%) complementary feeding was introduced to the diet earlier than 6 months of age.



Picture 1. Nutritional characteristics of infants with functional gastrointestinal disorders.

It was found that the most common manifestations of functional gastrointestinal disorders were: regurgitation - in 52 children (56,52%), infant colic - in 28 children (30,43%), functional constipation - in 18 children (19,56%). 75 (81,52%) of patients were noted to have one functional gastrointestinal disorder, in other infants with more than one FGID the most frequent combination was regurgitation and infant colic (12 patients – 13,04%).

Infant regurgitation (G1) is a common feeding manifestation in infants below the age of 1 year and the frequent reasons of counseling to general practitioners and pediatricians [3].

The European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) regurgitation intensity scale was used to objectively assess the symptoms of regurgitation in infants, taking into account the frequency and volume of regurgitation (Y. Vandenplas et al., 1993). The current study found a 61,95% (57 patients) prevalence of infant regurgitation in the 0–6 months age group which decreased to less than 6,52% (6 patients) at the end of the first year.

Infant colic was diagnosed in patients aged 1-4 months, all cases resolved by the age of 5 months.

Functional constipation affected infants from 1-12 months with no clear prevalence in any age group. Among the factors that could provoke constipation, the main ones were: sudden transition from breastfeeding to formula feeding (18 (19,56%) children), introduction of new products, beginning of supplementary feeding (34 children (36,96%)), in other cases the causes of constipation could not be established.

Conclusions

The current study found that preterm birth, low birthweight along with early transition to formula feeding and starting complementary feeding before 6 months of age are risk factors of developing functional gastrointestinal disorders in infants.

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