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# BOWEL DYSFUNCTION IN INFANTS - NORMALITY OR DISEASE

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**ABSTRACT**
*THE AGE OF INFANTS CAN BE CONSIDERED AS A PSYCHOLOGICAL THRESHOLD FOR THE PEDIATRIC DOCTOR AND FOR THE PARENTS. THE PHYSIOLOGICAL IMMATURITY OF THE DIGESTIVE SYSTEM CREATES A PARTICULAR PHYSIOLOGY OF THE RESPECTIVE PERIOD. THEREFORE, VERY EASY, CERTAIN CHANGES IN THE INTESTINAL TRANSIT COMPARED TO THE VERSION CONSIDERED "NORMAL" BY THE FAMILY.*
*THE STUDY, CONDUCTED OVER A 6-MONTH PERIOD, SHOWS THAT BOTH UNDERESTIMATION AND OVER-APPRECIATION OF THOSE REPORTED BY THE PARENT COULD BE JUST AS HARMFUL, THE ONLY ONE CAPABLE OF PLACING THE CHILD IN A PATHOLOGY OR PHYSIOLOGY CHARACTERISTIC OF THE AGE BEING THE PEDIATRIC DOCTOR.*

**KEYWORDS:** INFANT, TRANSIT, DISORDERS

The age of the baby for bowel dysfunction is practically between 1 month and 12 months. By assimilation will be included, the interval 0-1 month, which is chronologically assigned to the newborn. The distribution, more didactic, on chronological criteria, is necessary, each stage of age up to 1 year, presenting its own explosion of physical and mental development.

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The newborn, after going through the dramatic act of birth, must adapt, with all the immaturity of the organs and systems, to the extrauterine life.

In the healthy newborn there are particularities given by digestive immaturity, coordination between swallowing and intestinal peristalsis, reduced absorption i for lipids, acceptable for proteins, good for carbohydrates, bile secretion with a small amount of salts. Sucking is the basic reflex act, with the subcortical center (in the bulb), the first stool (meconium) is removed after 2-3 days after birth and viscous (epithelial cells flaking, bile, cholesterol, digestive secretions). The elimination of meconium is aided by the activity of colostrum, it follows the transition milk, with semi-liquid and then typical stools, from breast milk, different according to the type of nutrition (natural or artificial). The digestive microbiome is different from the naturally fed newborn to the artificially fed newborn, predominating bifidus bacilli versus bacilli coli. The newborn's stomach has a transverse orientation, after 2 years it tends to an upright position, the musculature is poorly developed and the gastric capacity is 30-35 $cm^3$. Gastric evacuation occurs after 1 1/2h-2 h in the naturally fed newborn and after 3-4 h in the artificial fed newborn[7].

Gastric secretion has a lower pH than naturally fed newborn, contains enough proteolytic enzymes, trypsin is in small quantity and will have, like lipase, a normal quantity at 1 year of age.

In the naturally fed baby the stool has a low consistency, yellow-golden color, granular appearance, adherent to the diaper with fad odor. In the artificially fed baby, the color is yellowish-white, high in consistency, does not adhere to the diaper and a fetid odor.

As a normal number of stools, it is estimated, by consensus, that it would be 3-4/day, in the naturally fed baby and 1-2/day in the artificially fed baby.

Proteolytic pancreatic enzymes (trypsin, cabopeptidase, chymotrypsin) are active at birth. Pancreatic lipase and esterase are deficient in the first year of life. Pancreatic amylase appears after 4 months of age (when it can break down starch). The mesentery is easily distensible in infants and young children, favoring the volvulus, and the rectum is slightly prolapsed, due to the poor development of the attachment mechanisms.

In the pediatric practice normality can have very wide limits. A natural born newborn normally has 7-10/day (stool after each meal) up to 2 stool/week. The newborn which is artificially fed has 1-2 stools/day to 3 stools/week. Many artificial formulas are improved with GOS, FOS, probiotics, for the purpose of ensuring optimal digestive activity[8].

Diarrhea defined as the elimination of a large number of stool in a short period of time, accompanied by hydroelectrolytic disorders, frequently occurs in the newborn in case of failure to comply to hygiene rules[9].

Bacterial diarrhea of the newborn has septicemic potential. Regarding diarrhea with rotavirus, the immature intestinal cells do not have well-expressed receptors for the virus, the children being "protected" until the age of 1-2 months.

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[7] Guyatt GH, Oxman AD, Vist GE, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ 2008;336:924–6; McMurray AR. Three decision-making aids: brainstorming, nominal group, and Delphi technique. J Nurs Staff Dev 1994;10:62–5

[8] Hyman PE, Milla PJ, Benninga MA, et al. Childhood functional gastrointestinal disorders: neonate/toddler. Gastroenterology 2006; 130:1519–26; Rasquin A, Di Lorenzo C, Forbes D, et al. Childhood functional gastrointestinal disorders: child/adolescent. Gastroenterology 2006; 130:1527–37

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Constipation is defined as difficulty elimination of the fecal bolus, which becomes hard, adherent. It is accompanied by rectal prolapse, possibly hemorrhoids. In special situations an anatomical cause of constipation is objectified - the congenital megalocolon or the congenital megadolicocolon.

Another special, sporadic variant is the presence of fecaloma, the amount of fecal accumulated in the rectum, exceeding its distal capacity and blocking the normal act of defecation[10].

**MATERIAL AND METHOD**

In a 6-month period, an outpatient study was performed on infants presented for consultation, for various disorders.

The parents (subjective) perception and the medical objectives were followed. From a number of 846 infants presented for various diseases to a number of 323, parents reported bowel dysfunction (constipation or diarrhea). (Fig 1,2 )

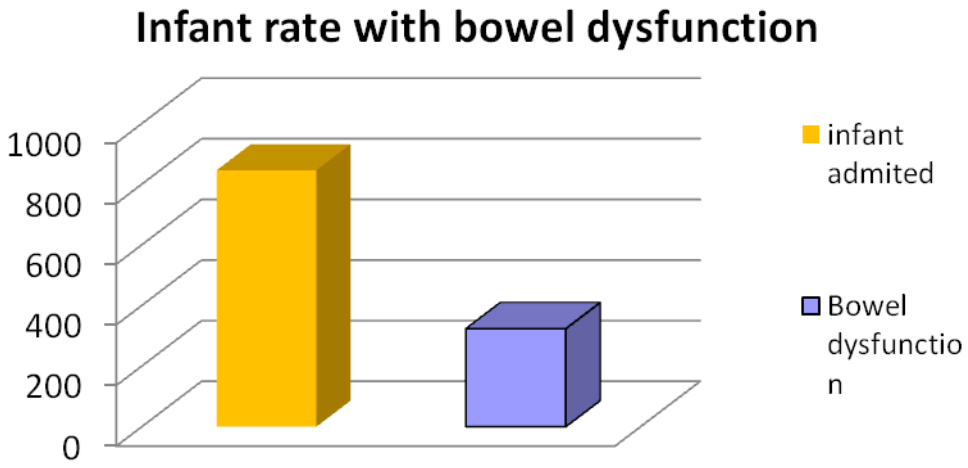


*Fig 1 Infant rate with bowel dysfunction*

[10] Burgers R, Levin AD, Di Lorenzo C, et al. Functional defecation disorders in children: comparing the Rome II with the Rome III criteria. J Pediatr 2012;161:615–20; Longstreth GF, Thompson WG, Chey WD, et al. Functional bowel disorders. Gastroenterology 2006;130:1480–91; Bekkali N, Hamers SL, Reitsma JB, et al. Infant stool form scale: development and results. J Pediatr 2009;154:521–6

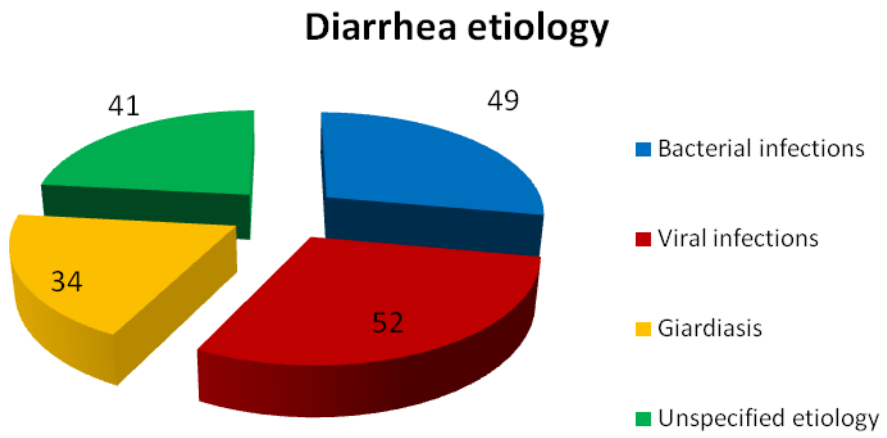


*Fig 2 Diarrhea etiology*

Of these, 176 were hospitalized or investigated for the etiology of a diarrheal disorder, in order: 49 cases of bacterial infections, 52 cases of viral infections (rotavirus and adenovirus), 34 cases of infestation with giardia, the remaining 41 of cases were with unspecified etiology (possible food intolerances, dietary errors, overeating, inadequate dilution of milk preparations, incorrect diversification, etc.)

The remaining 147 cases were perceived by parents as digestive disorders of transit as follows:

95 with the accelerated transit and 52 with its slowing transit, out of the 52, in 2 cases a congenital megacolon was objectified, at the rest of 50 the constipation was associated with the changes in the diet. In 21 cases fed naturally, a number of 2 stools/week was considered normal, the children presenting a normal growth rate and development, without associated discomfort and the described aspect of the stools suggests breast stools, and the slowing of the transit was solved with in the moment of diversification.(Fig 3)

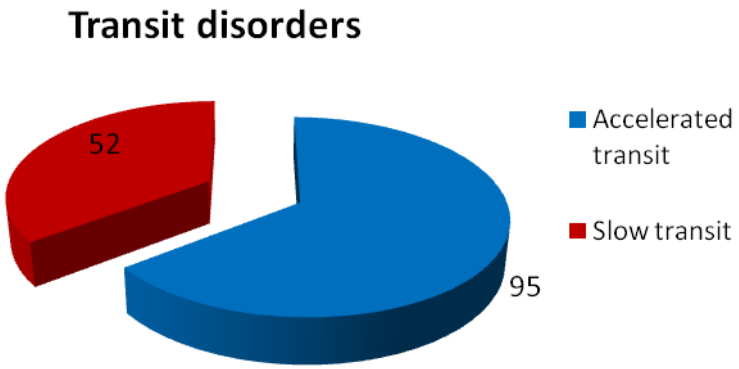


*Fig 3 Transit disorders*

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In the remaining 31 cases, all artificially fed, constipation could be objectified in a number of 20 patients (hard stools, scybala, defecation effort), with the rest being transient disorders.(Fig 4)

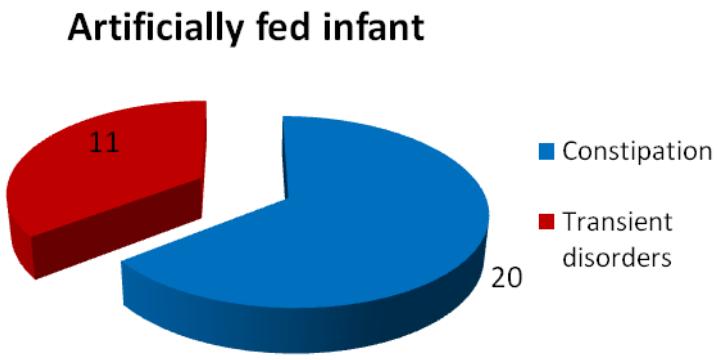


*Fig 4 Articially fed infant*

The diversification that was advised in a certain order, adapted to the physiology of the child (fruits, vegetables, cereal fibers), improved the manifestations in 11 cases. The 9 cases left with constipation were cataloged with a habitual form of constipation, after the exclusion of the megadolicocolon.

The 95 cases subjectively considered the accelerated transit, could be objectified in only 46 cases. Of the 49 false positive cases considered with acute diarrheea 43 had the growth rate unaffected, no etiologies or pathological products were detected in the stool (mucus, pus, blood), 35 of them were newborns, 6 cases were premature, with a subsequent degree of dystrophy and presented acute diarrhoea trainers, associated with other conditions.

The 46 reported cases of accelerated transit proved:

- 24 cases of dietary mistakes (administration of foods not suitable for age, cow's milk, incorrect dilutions of milk formulas, incorrectly prepared vegetables, excess juices, etc.)
- In 16 cases acute diarrheea appeared after medication administered accidentally (antibiotic therapy in 11 cases, in 5 cases were given martial preparations, multivitamins, immunostimulators).
- In 6 cases acute diarrheea was considered to be a secondary intolerance to lactose, following other digestive disorders and remitted under the dietary exclusion regime. (Fig 5)

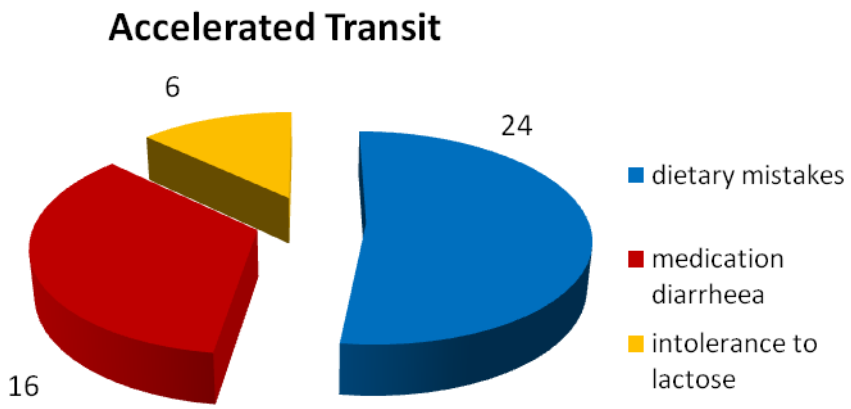


*Fig 5 Accelerated transit*

**CONCLUSIONS**

1. The subjectivism of parents is high in the newborn and infant period, a large part of the bowel dysfunction reported by them being a misinterpretation of the physiology of the small baby.

2. Viral, bacterial, parasitic digestive disorders that are likely to cause bowel dysfunction are much more common at young ages.

3. Dietary errors, delaying or accelerating diversification, failure to comply to food hygiene rules are precipitating factors for diseases accompanied by bowel dysfunction

4. The adequate intake of additional fibers in the diversification, the correct hydration of the body are protective factors for constipation.

5. Maintaining a constant and optimal rhythm of somatic and neuropsychic development of the child places the possible transit disorders in the category of temporary changes in the physiology of digestion, which does not require treatment, only follow-up.

6. Any case reported by bowel dysfunction is investigated completely clinically, paraclinically, imaging (in infants) to exclude a certain pathology.

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