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Letter to the Editor

Chronic Costipation as a Symptom of Food Allergy

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Letter to the Editor

Chronic constipation is a very common problem in children, but despite its high prevalence its cause remains unknown in most cases. Our previous work has shown a clear relationship between CM (cow's-milk)-intolerance and chronic constipation in most patients and is now accepted that these children can be cured with a CM free of diet. However, the pathogenesis of CM-related intolerance constipation is unknown and the existence of all inflammatory conditions is still debated.

We have recently carried out a study where we considered a new series of consecutive patients with chronic constipation and did not respond to previous standard treatments to evaluate the histological characteristics of the cases of constipation due to CM-intolerance.

The study included all consecutive infants and children with chronic constipation that did not respond to previous treatments tested in clinical patients out of the Division of Pediatric Gastroenterology of "Di Cristina" Hospital, Palermo, between December 2012 and May 2016. Chronic constipation was defined as <3 bowel movements per week with the painful elimination of hard stools.

The inclusion criteria were: A history of chronic constipation lasting at least three months; lack of response to a previous increase intake of dietary fiber and / or treatment laxative (milk of magnesia 1-2 ml per kilogram of body weight); regular intake of cow's milk and derivatives. The exclusion criteria were: the previous assessment for chronic constipation; anatomic / neurological causes of constipation (case of Hirschsprung's disease I, psychomotor retardation 1 case); Constipation due to another disease (celiac disease 1case, hypothyroidism 1 case); anal surgery before; use of medications that can cause constipation; postponement for several reasons chronic constipation (15 cases). All patients were fed a normal diet, without any restrictions. In accordance with the above criteria were recruited 70 patients (aged 9 months-12 years, median 4.6 years). When patients were examined before a detailed chart was compiled with the results of the physical exam information and case history information.

The kids' parents gave their informed consent to all diagnostic and therapeutic procedures in this study. The study protocol was approved by the Ethics Committee of the University Hospital of Palermo. After the two-week observation period, all patients underwent the cow's milk protein-free diet period and during the first two weeks of this treatment the number of bowel movements normalized in 31 subjects.

The remaining 39 patients were then placed on a narrower oligoantigenic diet. On this regime, bowel movements normalized in other 7 patients, while 32 did not improve. These 32 patients were considered to be suffering from chronic constipation not related to food intolerance. The test placebo-controlled double-blind cow's milk confirmed that 31 patients treated on a diet, were suffering of CM-allergy.

In all cases, the re-administration of cow's milk caused the reappearance of constipation, often associated with abdominal pain and perianal erythema, within five days after the start of the challenge (median 2 days, range 1-5 days) and these symptoms disappeared returning to the diet without CM or oligoantigenic diet in 7 patients with multiple food intolerance.

In these seven subjects, other foods are gradually reintroduced into their diet and the following caused the recurrence of constipation: wheat (4 cases), eggs (2 cases), tomato (1 case), fish (2 cases), cocoa (1 of cases), soybean (3 cases). For each one of these foods, open challenges confirmed intolerance, showing recurrence of constipation 1-5 days after reintroduction.

According to the results above, we diagnosed chronic constipation due to intolerance CM- 31 patients and chronic constipation due to multiple food intolerance in 7 patients.

At study entry, endoscopy showed mild inflammation of the rectum mucosal, erythema and friability, no ulcerations or erosions in all 31 patients with food allergies and 7 of 39 patients constipation to food intolerance ($P < 0.001$). Hematoxylin-eosin showed mucosal erosions in 30/31 patients with food intolerance and only 2/32 of the subjects who do not suffer from food intolerances ($P < 0.001$). There was no distortion of crypts or branching in patients with food intolerance, inflammation is characterized by infiltration of eosinophils mucosa, lymphocytes and plasma cells with the appearance of both follicular and diffuse inflammation. Patients with food intolerance significant1y showed a higher number of lymphocytes and eosinophils intra-epithelial and eosinophils in the lamina propria compared to patients with constipation unrelated to food intolerance. On the elimination diet, all 31 patients with constipation-related food intolerance showed normal rectal endoscopy. At this time, the histology showed no mucosal erosions in any of the cases and it was absolutely normal in 18 of 31 patients and inflammation is greatly reduced in the others. Morphometry revealed a significant decrease in the number of lymphocytes and eosinophils intra-epithelial and eosinophils in the lamina propria from baseline.

The study of the surface mucus gel layer on the rectal mucosa, performed at the time of study entry, has shown that patients suffering from food intolerance a marked reduction in the thickness of the mucus gel layer. There was a reduction or disappearance of sialomucins not sulfated in many cases (26/31), whether sulfated mucins were reduced in 8/31 cases. Only 4 of 32 unrelated patients

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with constipation to food allergies showed a reduction in the thickness of the mucus gel layer on the rectal mucosa. On the elimination diet, patients with food allergies have shown a significant increase in the thickness of the mucus gel layer compared to baseline.

Finally, we recorded significant correlations between parameters inflammatory histology and manometry data. Although our and others' studies, have the relationship between intolerance of Cow's Milk Proteins (CMPI) and chronic constipation, very little is known about the pathogenesis of chronic constipation due to the CMPI. Consequently we performed this study to investigate the histological findings in patients with chronic constipation due to CMPI.

31 of 70 patients (43%) completed the study showed a CM-related intolerance or a food intolerance related chronic constipation. In these subjects, the symptoms disappeared on CM-free diet or oligoantigenic and subsequent food challenges have shown that these patients had CM-intolerance or more food allergies. In fact, in these cases constipation reappears when the various foods were restored and disappeared on the elimination diet. According to the diagnostic criteria of the European Society of Pediatric Gastroenterology, Hepatology and Nutrition for food intolerance / allergy, we can say that almost half of the patients included in the study (31+7 of 70) were suffering from food allergies that caused chronic constipation.

As other studies centers showed frequency of constipation due to CM-intolerance between 28% and 70%, it can be concluded that in patients that do not respond to conventional treatments or with a personal history of CM-intolerance, constipation is very often a manifestation of food intolerance in our series immunoassays performed to highlight an IgE-mediated hypersensitivity were negative often, considering that the IgG antibetalactoglobulin test was positive over than 50% of cases. This result is in line with the reported lack of specific IgE assay sensitivity in patients with symptoms of food intolerance and irritable bowel syndrome-like and the very recent observation that IgG food helps to identify food intolerances.

Furthermore, the observation that constipation reappeared as delayed clinical reaction (in 48 hours after CM-reintroduction average) indicates that a cell-mediated hypersensitivity appears to be the most likely immune mechanism. This seems to be confirmed by histological examination: rectal biopsies of patients with chronic constipation to food intolerance showed inflammation in subjects with mucosal erosions in 30 of 31 patients. These alterations were clearly food-dependent, as they have completely disappeared on the elimination diet. Also interesting is the behavior of the layer of mucus gel rectal mucosa: our date showed that in foods intolerant patients there was a severe reduction of the thickness of the layer of mucus on the rectal mucosa. Our results showed eosinophils infiltrate as the main characteristic histology of proctitis in patients with constipation due to food intolerance. In additions, there was the recent confirmation that the recruitment of eosinophils could disrupt enteric nerve function in sensitized mice as electron microscopy showed neuronal damage areas very adjacent to the degranulating eosinophils in the gastric mucosa.

Also it is worthy to note the correlation between the eosinophil infiltrated and the reduction of the mucus gel layer on the rectal mucosa. We hypothesize that in patients with chronic constipation loss of the rectal outer mucus layer reduces the physiological role of lubrification and may contribute to the pathogenesis of constipation. In summary the main findings of our study were: chronic constipation in children may be due to both the CM-intolerance and/or more food intolerances, constipation food intolerant patients is associated with proctitis; reduced mucus gel layer can be considered contributing factors in the pathogenesis of constipation.

References

1. Iacono G, Carroccio A, Cavataio F, Montalto G. Multiple food allergy. J Pediatr Gastroenterol Nutr. 1993; 16: 472-473.
2. Iacono G, Carroccio A, Cavataio F, Montalto G, Cantarero MD, Notarbartolo A. Chronic constipation as a symptom of cow milk allergy. J Pediatr. 1995; 126: 34-39.
3. Loening-Baucke V. Constipation in children. Curr Opin Pediatr. 1994; 6: 556-561.
4. Issenman RM, Hewson S, Pirhonen D, Taylor W, Tirosh A. Are chronic digestive complaints the result of abnormal dietary patterns? Diet and digestive complaints in children at 22 and 40 months of age. Am J Dis Child 1987; 141: 679-682.
5. Iacono G, Cavataio F, Montalto G, Florena A, Soresi M, Tumminello M, et al. Intolerance of cow's milk and chronic constipation in children. N Engl J Med. 1998; 338: 1100/4.
6. Partin JC, Hamill SK, Fischel JE, Partin JS. Painful defecation and fecal soiling in children. Pediatrics. 1992; 1989: 1007-1009.
7. Roma E, Adamidis D, Nikolara R, Constantopoulos A, Messaritakis J. Diet and chronic constipation in children: the role of fiber. J Pediatr Gastroenterol Nutr. 1999; 28: 169-174.
8. Daher S, Sole D, de Morais MB. Cow's milk and chronic constipation in children. N Engl J Med. 1999; 340: 891-892.
9. Shah N, Lindley K, Milla P. Cow's milk and chronic constipation in children. N Engl J Med. 1999; 340: 891-892.
10. Iacono G, Carroccio A, Cavataio F, Montalto G, Kaz- mierska I, Lorello D, et al. Gastroesophageal reflux and cow's milk allergy in infants: a prospective study. J All Clin Immunol. 1996; 97: 822-827.
11. Daher S, Tahan S, Sole D, Naspitz CK, Patricio FRS, Fagundes-Neto U, et al. Cow's milk protein intolerance and chronic constipation in children. Pediatr Allergy Immunol. 2001; 12: 339-342.
12. Hill DJ, Firer MA, Shelton MJ, Hosking CS. Manifestations of milk allergy in infancy: clinical and immunological findings. J Pediatr. 1986; 109: 270-276.
13. Carroccio A, Cavataio F, Montalto G, D'Amico D, Alabrese L, Iacono G. Intolerance to hydrolysed cow's milk proteins in infants: clinical characteristics and dietary treatment. Clin Exp All. 2000; 30: 1597-1603.
14. Matsuo K, Ota H, Akamatsu T, Sugiyama A, Katsuyama T. Histochemistry of the surface mucous gel layer of the human colon. Gut. 1997; 40: 782-789.
15. Surawicz CM, Haggitt RC, Husseman M, McFarland LV. Mucosal biopsy diagnosis of colitis: acute self-limited colitis and idiopathic inflammatory bowel disease. Gastroenterology. 1994; 107: 755-763.

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