Do Children Just Grow Out of Irritable Bowel Syndrome?

Eleonora Giannetti, MD, Marco Maglione, MD, Elisa Sciorio, MD, Vincenzo Coppola, MD, Erasmo Miele, MD, and Annamaria Staiano, MD

Objective Few data exist on natural history of irritable bowel syndrome (IBS) in children; therefore we investigated symptoms evolution over time in a cohort of children with IBS.

Study design In this observational, single-center study, we prospectively enrolled newly diagnosed children with IBS and reassessed them after 24 months. At both time points, patients completed a symptoms questionnaire, and a score of stool consistency was obtained. The therapeutic strategy adopted was also recorded.

Results Eighty-three children (age 11 years, range, 4-16.6 years; 53 males) completed the study. Forty-seven (56.6%) patients received no medical treatment, whereas polyethylene glycol, probiotics, and trimebutine were prescribed to 9 (10.8%), 24 (28.9%), and 3 (3.6%) subjects, respectively. Twenty-four months after diagnosis, 48 children (57.8%) reported resolution of symptoms ($P < .001$), without differences between sexes ($P = .35$) or among IBS subtypes ($P = .49$). Of these, 30 (62.5%) had been only reassured and 18 (37.5%) had been prescribed medical treatment ($P = .26$).

Despite not being statistically significant, symptoms resolution was more common in patients receiving no medical treatment than in those receiving probiotics (63.8% vs 41.6%, $P = .08$).

Among patients with constipation-IBS, no difference was found in symptoms resolution between patients receiving polyethylene glycol and those receiving no medical treatment (67% and 40%, respectively, $P = 1$).

Conclusions Children with IBS are likely to show spontaneous symptoms resolution over a 24-month follow-up, regardless of sex, age, impact of symptoms on daily activities, and IBS subtypes. *(J Pediatr 2017;183:122-6).*

Irritable bowel syndrome (IBS), as described by using the Rome criteria, includes symptoms of abdominal pain or discomfort accompanied by changes in bowel patterns.[1,2] Studies have estimated the prevalence of IBS to range between 6% and 14% in children and between 22% and 35.5% in adolescents.[3,4] A confident diagnosis, explanation of pain experience, and reassurance can by themselves be therapeutic.[5] Specific goals of therapy include modifying severity and developing strategies for dealing with symptoms.[1] In adults, the Rome III committee recommends a subclassification into different subtypes based on the predominant bowel habit (constipation-IBS [C-IBS] or diarrhea-IBS [D-IBS]).[6] Some authors[7] consider that patients with symptoms of both constipation and diarrhea should constitute an alternating-IBS (A-IBS) or a mixed-IBS subtype.

The natural history of the condition has been previously studied in adults, and its prevalence is reported to remain relatively stable over short periods of time,[8] with the resolution of symptoms in some individuals matched by the onset of new symptoms in others.

One study has reported an increase in IBS prevalence during a 7-year-follow-up,[8] but there are few other published data supporting this observation.

A systematic review showed that the clinical course of IBS is highly heterogeneous because the distribution of clinical subtypes differs depending on the population considered, the geographic location, and the criteria used to define IBS and bowel habit subtypes. In most cases, the clinical course is characterized by the presence of mild-to-moderate symptoms appearing sequentially.[9]

Despite its high frequency in children, the natural history of IBS remains poorly described. Particularly, the link to adult IBS has yet to be fully elucidated, and only a few studies have followed up children with IBS into adolescence and adult life.

A systematic review showed that in 29.1% of children with chronic abdominal pain, symptoms persist after a median follow-up of 5 years.[10] IBS-like symptoms have been shown to be present in up to 68% of children with recurrent abdominal pain (RAP), although the proportion who meet specific criteria for an IBS diagnosis is somewhat lower.[11] The strongest evidence that childhood and adult disorders are linked derives from longitudinal studies highlighting that abdominal pain persists into adolescence and adulthood in roughly one-third to one-half of affected children,[12-15] that is significantly higher than the rate of adult abdominal pain reported by non-RAP controls.[12,14,15] In addition, a few

A-IBS	Alternating-IBS	IBS	Irritable bowel syndrome
C-IBS	Constipation-IBS	PEG	Polyethylene glycol
D-IBS	Diarrhea-IBS	RAP	Recurrent abdominal pain
FGIDs	Functional gastrointestinal disorders		

From the Department of Translational Medical Sciences, Section of Pediatrics, Federico II University, Naples, Italy

The authors declare no conflicts of interest.

http://dx.doi.org10.1016/j.jpeds.2016.12.036

retrospective studies of adults with IBS who recalled experiencing abdominal pain during childhood also suggested that at least a subset of adult IBS may represent the persistence of symptoms from childhood.[16,17]

We previously showed that, in our population, C-IBS was the most frequent subtype (45%) both at diagnosis and after 1 year of follow-up, with 55.7% of children showing resolution of abdominal pain and bowel habit changes over time.[18] In the present study, we aimed to describe the evolution of IBS symptoms over time in a cohort of affected children, who were diagnosed before January 2014.

Methods

Patients eligible for the study were all the children aged 5-17 years who were referred to the Department of Translational Medical Sciences, Section of Pediatrics of the "Federico II" University for RAP between March 2012 and January 2014. For all eligible children, a full medical history was collected, and patients underwent clinical evaluation, laboratory tests (full blood cell count, inflammatory markers, antitransglutaminase and antiendomysial antibodies, fecal calprotectin), and a 2-week-trial with a lactose-free diet to exclude lactose intolerance.

All children who received a final diagnosis of IBS, based on the Rome III criteria for pediatric functional gastrointestinal disorders (FGIDs), were recruited. Exclusion criteria were (1) FGIDs other than IBS; (2) any underlying chronic disorders; (3) cerebral palsy; and (4) delayed psychomotor development. An informed consent was obtained at enrollment from parents of all children younger than 10 years and from both parents and children if older than 10 years. The study was approved by our Institutional Review Board.

The study had a single-center, observational, prospective design. All children who received an IBS diagnosis were prospectively followed-up at our tertiary care center and reassessed after 24 months. At enrollment, information regarding abdominal pain characteristics, bowel habits, and associated symptoms were recorded using a previously validated self-administered questionnaire. The questionnaire was developed according to the Rome III diagnostic questionnaire for pediatric FGIDs.[19] Impact of symptoms on patients' life was assessed using the questionnaire's item regarding how often days off school or interruption of daily activities because of IBS were needed. Patients who did not report this need received a score of 0, which increased up to 4 points in subjects with a highly frequent occurrence of days off school and interruption of daily activities. Both at diagnosis and after 24 months, patients and/or their parents were asked to complete the IBS symptoms questionnaire, and a score of stool consistency according to the Bristol Stool Form Scale was obtained.[20] Resolution of symptoms, namely abdominal pain and bowel pattern alterations, represented the primary outcome assessed at 24 months of follow-up. Patients were classified in different subtypes of IBS based on the adult Rome III classification, because of the lack of a classification for children.[6] At diagnosis, all children were reassured by oral and written instructions. It was explained to families that IBS is a functional disorder with no organic cause and were educated to face episodes of abdominal pain by attempting to reduce patient's anxiety. Further therapeutic interventions during the 24-month follow-up, including drugs, did not represent a study procedure, but were recorded at the evaluation at 24 months.

Statistical Analyses

The study sample was calculated assuming an expected proportion of patients with symptoms resolution of 56%.[21] We estimated that, with a power of 80% and a significance level of 0.05, a sample size of 83 subjects was appropriate. Statistical analysis was carried out using SPSS statistical software package for Windows v 13.0 (SPSS Inc, Chicago, Illinois). A value of $P < .05$ was considered significant. Fisher exact test was used to assess the prevalence of symptoms resolution between groups.

Results

Of the 330 eligible patients referred to our department for RAP between March 2012 and January 2014, 98 children received an IBS diagnosis. Of these, 83 patients completed the 24 month-follow-up study and were included in the data analysis (**Figure 1**; available at www.jpeds.com). Patient characteristics both at diagnosis and after 24 months are summarized in the **Table**.

At diagnosis, C-IBS was the most prevalent subtype, affecting 34 out of 83 children (41%). D-IBS and A-IBS were reported in 26 (31.3%) and 23 (27.7%) children, respectively. Diagnosis required no invasive investigations in most patients, and only 5 subjects (6%) underwent colonoscopy to exclude alternative conditions. No relevant comorbidities, including disorders frequently associated with IBS, such as Ehlers Danlos hypermobility syndrome or postural orthostatic tachycardia syndrome, were detected. At enrollment, impact of symptoms on daily life was detected in all patients, with 32 subjects (38.5%) reporting interference with daily activities occasionally (score 1), 26 patients (31%) sometimes (score 2), 12 (14.5%) most of the time (score 3), and 13 (16%) always (score 4).

Table. Patient characteristics at enrollment and after 24 months, and IBS subtype changes over the study period

	Enrollment	24 mo
Patients, n (%)		
Symptomatic	83 (100)	35 (42.2)
Asymptomatic	-	48 (57.8)
Age (y)	11 (4-16.6)	13 (6-18.6)
Male:female	53:40	
IBS-subtype, n (%)		
C-IBS	34 (41)	6 (17)
D-IBS	26 (31)	7 (20)
A-IBS	23 (28)	22 (63)
Subtype changes, n (%)		
C-IBS → A-IBS	7 (8)	
D-IBS → A-IBS	6 (7)	
A-IBS → C-IBS	1 (1)	