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Childhood Functional Gastrointestinal Disorders: Child/Adolescent

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Characterization of childhood and adolescent functional gastrointestinal disorders (FGIDs) has evolved during the 2-decade long Rome process now culminating in Rome IV. The era of diagnosing an FGID only when organic disease has been excluded is waning, as we now have evidence to support symptom-based diagnosis. In child/adolescent Rome IV, we extend this concept by removing the dictum that there was "no evidence for organic disease" in all definitions and replacing it with "after appropriate medical evaluation the symptoms cannot be attributed to another medical condition." This change allows the clinician to perform selective or no testing to support a positive diagnosis of an FGID. We also point out that FGIDs can coexist with other medical conditions that themselves result in GI symptoms (eg, inflammatory bowel disease). In Rome IV, functional nausea and functional vomiting are now described. Rome III's "abdominal pain related functional gastrointestinal disorders" has been changed to "functional abdominal pain disorders" and we have derived a new term, *functional abdominal pain—not otherwise specified*, to describe children who do not fit a specific disorder, such as irritable bowel, functional dyspepsia, or abdominal migraine. Rome IV FGID definitions should enhance clarity for both clinicians and researchers.

Keywords: Children; Adolescents; Abdominal Pain; Nausea; Vomiting; Functional Disorders.

CHILD/ADOLESCENT

The Rome criteria provide symptom-based guidelines by which child and adolescent functional gastrointestinal disorders (FGID) can be diagnosed. Previous Rome III criteria were based mostly on consensus, as research in child/adolescent FGIDs was still largely lacking. An expanded evidence base from the last 10 years provides the basis for many of the recommendations of the child/adolescent committee for Rome IV. For disorders still lacking scientific data, the committee used clinical experience and consensus among the committee members.

The Rome IV functional gastrointestinal disorders (FGID) for children and adolescents are shown in Table 1. Rome III criteria emphasized that there should be "no evidence" for organic disease, which may have prompted a focus on testing.[1] In Rome IV, the phrase "no evidence of an inflammatory, anatomic, metabolic, or neoplastic process that explain the subject's symptoms" has been removed from diagnostic criteria. Instead, we include "after appropriate medical evaluation, the symptoms cannot be attributed to another medical condition." This change permits selective or no testing to support a positive diagnosis of an FGID. We also point out that FGIDs can coexist with other medical conditions.[2,3] Similarly, different FGIDs frequently coexist in the same patient. We have described 2 new disorders, functional nausea and functional vomiting. We changed "abdominal pain related functional gastrointestinal disorders" to "functional abdominal pain disorders" (FAPD) and have derived a new term, *functional abdominal pain—not otherwise specified* (FAP-NOS) to describe children who do not fit a specific disorder, such as irritable bowel, functional dyspepsia, or abdominal migraine. Minor modifications have been made to several other FGID.

H1. Functional Nausea and Vomiting Disorders

H1a. Cyclic Vomiting Syndrome

Epidemiology. Data suggest a community prevalence of 0.2%−1.0% for cyclic vomiting syndrome (CVS) using Rome III criteria.[4] Median age of symptom onset varies from 3.5 to 7 years, but CVS occurs from infancy to adulthood, with 46% having symptom start at 3 years of age or before.[5]

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Abbreviations used in this paper: CVS, cyclic vomiting syndrome; EGD, esophagogastroduodenoscopy; FAPD, functional abdominal pain disorder; FD, functional dyspepsia; FGID, functional gastrointestinal disorder; IBS, irritable bowel syndrome; NFI, nonretentive fecal incontinence; NOS, not otherwise specified.

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Table 1. Functional Gastrointestinal Disorders: Children and Adolescents

H1. Functional nausea and vomiting disorders
H1a. Cyclic vomiting syndrome
H1b. Functional nausea and functional vomiting
H1c. Rumination syndrome
H1d. Aerophagia
H2. Functional abdominal pain disorders
H2a. Functional dyspepsia
H2b. Irritable bowel syndrome
H2c. Abdominal migraine
H2d. Functional abdominal pain—not otherwise specified
H3. Functional defecation disorders
H3a. Functional constipation
H3b. Nonretentive fecal incontinence

H1a. Diagnostic Criteria for Cyclic Vomiting Syndrome

Must include all of the following:

1. The occurrence of 2 or more periods of intense, unremitting nausea and paroxysmal vomiting, lasting hours to days within a 6-month period.
2. Episodes are stereotypical in each patient
3. Episodes are separated by weeks to months with return to baseline health between episodes.
4. After appropriate medical evaluation, the symptoms cannot be attributed to another condition.

If abdominal pain and vomiting are present, the predominant or more consistent symptom should be considered for the primary diagnosis. If the predominant feature is abdominal pain, then abdominal migraine should be considered.

Rationale for changes in diagnostic criteria. Rome IV criteria require that the attacks be stereotypical for the individual patient, occur within a 6-month period, that criteria for another FGID not be fulfilled, and that the primary and most severe symptom be vomiting rather than abdominal pain. The committee has changed the statement "return to usual state of health lasting weeks to months" to "episodes are separated by weeks to months with return to baseline health between episodes." This change was made because "usual state of health" could have been misinterpreted as being asymptomatic between episodes and did not allow the coexistence of mild GI symptoms at baseline.

Clinical evaluation. The committee endorses the clinical evaluation proposed in the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition CVS guidelines for children 2 to18 years of age.[6] There is a higher likelihood of underlying neurometabolic diseases in children with early onset of symptoms and metabolic testing should be carried out during the vomiting episode and before administration of intravenous fluids to maximize detection of abnormalities. Chronic use of cannabis can be associated with repeated episodes of severe vomiting, nausea, and abdominal pain (cannabinoid hyperemesis syndrome) and should be considered in adolescent patients. Compulsive long hot water bath or shower (frequently lasting several hours) resulting in temporary symptom relief is common in cannabinoid hyperemesis syndrome.

Treatment. The committee endorses the therapeutic approach recommended in the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition CVS guidelines.[6] The guidelines recommend cyproheptadine in children <5 years of age and amitriptyline in children >5 years. Second-line treatment includes prophylaxis with propranolol for children of all ages. Some patients with CVS may require combinations of drugs or complementary treatments, such as acupuncture and/or cognitive-behavioral therapy to help control their symptoms.[7] Mitochondrial cofactors co-enzyme Q10 and L-carnitine have been used as adjunctive therapy in some patients.[8] Abortive treatment is based on a combination of hydration and drug administration.

H1b. Functional Nausea and Functional Vomiting

Epidemiology. There are no pediatric data on the prevalence of isolated nausea, isolated vomiting, or a combination of both in the literature.

H1b. Diagnostic Criteria[a] for Functional Nausea and Functional Vomiting

H1b1. Functional Nausea

Must include all of the following fulfilled for the last 2 months:

1. Bothersome nausea as the predominant symptom, occurring at least twice per week, and generally not related to meals
2. Not consistently associated with vomiting
3. After appropriate evaluation, the nausea cannot be fully explained by another medical condition

H1b2. Functional Vomiting

Must include all of the following:

1. On average, 1 or more episodes of vomiting per week
2. Absence of self-induced vomiting or criteria for an eating disorder or rumination
3. After appropriate evaluation, the vomiting cannot be fully explained by another medical condition

[a]Criteria fulfilled for at least 2 months before diagnosis.