Obesity and Gastrointestinal Disorders in Children

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Introduction:Obesity in children has become a global pandemic during the last decade.
Recent studies have reported an association between obesity and functional gastrointestinal (GI) disorders. In addition, obesity is also becoming increasingly recognized at diagnosis of organic GI diseases such as celiac dieses and inflammatory bowel disease.
Obese children are at an increased risk for developing liver disease ranging from hepatic steatosis to cirrhosis. Apart from these effects, obesity also adversely affects the quality of life and the psychosocial well-being of children .

Material & methods

Obesity and gastro intestinal discorders in children

OBESITY AND GASTROESOPHAGEAL REFLUX

Several adult studies have described an association between high body mass index (BMI) and GER.
In addition, obesity is a known risk factor for erosive esophagitis, hiatal hernia ,Barrett esophagus, and esophageal adenocarcinoma in adults .
Stordal et al found that being overweight was associated with a higher prevalence of GER symptoms in children .
reflux symptom score increased in a linear fashion with an increasing BMI.
GERsymptoms were more prevalent in obese children compared with the Control.

OBESITY AND FUNCTIONAL CONSTIPATION

the pediatric literature suggests a positive relation between obesity and constipation. the overall prevalence of obesity is significantly higher in the constipated children compared with the control group .
healthy obese/overweight children had a significantly higher prevalence ofconstipation than their healthy normal-weight counterparts . In summary, all of the pediatric studies report asignificant association between obesity and constipation.

OBESITY AND FUNCTIONAL ABDOMINAL PAIN

A meta-analysis of 16 adult studies showed a nonsignificant relation between obesity and abdominal pain .
Although significantly more obese children complained of recurrent abdominal pain in Malaty et al survey, standardized ROME criteria were not used to make a diagnosis of functional pain in this study.
overall the present pediatric studies do not support an association between obesity and FAP.

OBESITY AND IRRITABLE BOWEL SYNDROME

In adults, the available data on the association between obesity and IBS are conflicting.
In some study's from Connecticut, it is found an increased prevalence of IBS in obese/overweight children as comparedwith normal-weight children .Thus, some pediatric studies have noted a positive relation between obesity and IBS.

OBESITY AND CELIAC DISEASE

Because obesity is increasing in the general population, it is not surprising that some patients with celiac disease are obese at the time of diagnosis.
Gluten-free diet usually leads to the improvement in growth parameters of patients with celiac disease. Recent studies reported a trend toward obesity on a gluten-free diet.
In children,the effects of a gluten-free diet on the BMI z scores are mixed. Some studies noted an increase in BMI z scores whereas others reported a decrease in BMI z scores on a gluten-free diet. compliance to a gluten-free diet was an important factor to prevent obesity on a gluten-free diet. Thus, recent studies show that children with celiac disease can be obese at presentation and also have a risk of developing obesity on a gluten-free diet.

OBESITY AND INFLAMMATORY BOWEL DISEASE

Similar to celiac disease, traditionally, weight loss and low BMI have been common presenting symptoms at diagnosis of IBD.Contrary to this belief, recent studies in adults and children have suggested that patients with IBD can in fact be obese at presentation.
Long et al found that the one-fifth children with Crohn disease and one-third children with ulcerative colitis were overweight or obese at the time of diagnosis. African American race and Medicaid insurance were positively associatedwith overweight/obese status in their study cohort. Hence, the presence of obesity is not an uncommon finding at the time of diagnosis of IBD in children.

MECHANISMS OF ASSOCIATION

in GERsymptoms and complications, One possible mechanism include extrinsic gastric compression by surrounding adipose tissue leading to an increase in intragastric pressures and subsequent relaxation of the lower esophageal sphincter .

the relation between obesity and FGIDs, potential mechanisms include the role of diet, neuropeptides, psychosocial factors, and the gut microbiome.

Excess sugars in the diet, especially fructose and corn syrup, can result in an osmotic effect with symptoms of pain, bloating, and diarrhea. Excess fat in diet could result in a delayin gastric emptying with resultant nausea, vomiting, and gastroesophageal reflux.

Another possible mechanism may involve brain–gut neuropeptides such as leptin, ghrelin, cholecystokinin, and glucagon-like peptide-1. It has been shown that normal-weight individuals have higher levels of ghrelin than obese individuals. Studies have shown that psychosocial factors including depression, anxiety, and poor self-esteem are often present in obese children . There is also an association between these factors and FGIDs. Dysbiosis and distinct gut microbial signatures have been reported in children with Crohn disease and IBS . Similarly, it has been shown that obesity is associated with a change in microbiota, reduction in bacterial diversity, and altered metabolic pathways.

CLINICAL SIGNIFICANCE OF ASSOCIATION

Childhood obesity is a global pandemic with significant morbidity and mortality. In addition to the well-known complications, the recently reported association of obesity with GI disorders is noteworthy.

Another point of concern is that the presence of obesity seems to adversely affect the outcome of GI disorders. Blain et al reported that obese patients had in creased morbidity ,worse disease activity and more frequent per anal complications .

CONCLUSIONS

There is an association between obesity and GI disorders such as gastroesophageal reflux, constipation, and IBS in children.

Obesity is also being identified at diagnosis of conditions such as celiac disease and IBD, which are traditionally believed to be associated with growth failure. Physicians need to be aware of this association and its significance so that they can provide appropriate care to children with obesity and GI disorders.