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'Gastroenterology in Pediatrics: Current knowledge about some common disorders'

Editor

Makbule Eren[1], Hasan Özen[2]

[1]Eskisehir Osmangazi University, Faculty of Medicine, Department of Pediatric Gastroenterology and Hepatology, Eskisehir, Turkey. [2]Hacettepe University, Faculty of Medicine, Department of Pediatrics, Section of Gastroenterology, Hepatology and Nutrition, Ankara, Turkey

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Makbule Eren

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EDITORIAL

Evolution of Pediatric Gastroenterology

Makbule Eren

The emergence of pediatric gastroenterology as a subspecialty within the pediatrics started in early 1960's, approximately a decade later than the emergence of adult gastroenterology. Until that time pediatricians were able to deal with some of the gastroenterological problems with their general pediatrics notion. In case of a specialist requirement adult gastro-enterologist met the needs to some extent. But as it is widespreadly accepted a child is not a small prototype of an adult. It is a growing organism with different metabolism and age problems necessitating a specialized knowledge of the normal expected pattern of physiological development and unique age related problems. Moreover some of the diseases are unique to that specific child age group. Perceiving these facts and development in pediatric surgery, pathology, molecular genetics and technology brought about the emergence of pediatric gastroenterology. Advances in two topic, intestinal biopsy and pediatric endoscopy had considerable impact on the worldwide evaluation of this subspecialty. Especially intestinal biopsy took a triggering role and improved the knowledge about gastrointestinal morphology and function. Many disorders like congenital malabsorption, congenital and acquired enteropathies, and intestinal lymphangiectasia could be described more precisely. Moreover development of pediatric endoscopy devices, equipments and procedures enabling safe intestinal biopsies blaze a trail in the development of pediatric gastroenterology. Cellular, genetic and molecular studies of varies disorders gained acceleration. It appeared that many of the gastroenterological disorders have inherited bases, some of the adult diseases have their onset during infancy or adolescence age, and some diseases that are formerly thought to be a problem of adolescence or adults, like ulcerative colitis, crohn disease, and pancreatitis can also be found in early childhood.

With the improvement, classic knowledge and presentation about some diseases has changed. Celiac disease is certainly one of those challenging and puzzling diseases with changing clinical features throughout the last two centuries. In 1888 Samuel Gee first described the classic form of celiac disease as the malabsorption syndrome of infancy. Though Willem Karel Dicke discovered the harmful effect of dietary gluten in celiac disease, it was first Sakula and Shiner who observed flat mucosa on intestinal biopsies of these patients in 1958. Later in 1960 Anderson found out that these mucosal lesions improve with gluten free diet. Since then clinical presentation and the understanding about the disease has changed a lot. With advance in molecular genetics

Makbule Eren

Eskisehir Osmangazi University, Faculty of Medicine, Department of Pediatric Gastroenterology and Hepatology

Corresponding author:
Makbule Eren, MD

Associate professor in Eskisehir Osmangazi University Faculty of Medicine, Department of Pediatric Gastroenterology and Hepatology
Tel: 00902222392979, 2762
e- mail: makbule99@yahoo.com

and immunology today we know that celiac disease is an autoimmune, genetically based, gluten sensitive enteropathy both with intestinal and exstraintestinal manifestations. With the understanding of that the autoimmune reaction is triggered and sustained with gluten containing food and emerging knowledge of the beneficial effect of exclusive breast milk on food hyper-sensitivities and allergic disorders and tendency towards advising exclusive breast feeding the incidence of the disease in infancy has decreased. Age of diagnoses switched to older ages and clinical presentation changed from a typical malabsorption syndrome to a more subtle clinic with abdominal pain and some other extra intestinal presentations like anemia. Recognizing the disease predominance in certain HLA groups (DQ2, DR8), some other autoimmune diseases such as hypothyroidism, diabetes mellitus (DM), chromosomal anomalies like down and turner syndrome; immunologic disorders such as IgA deficiency led to the establishment of certain screening guidelines. Therefore, the actual disease prevalence is now found to be higher than previously known (1).

With advance in flexible endoscopies and colonoscopies inflammatory bowel disease (IBD) is being now recognized in increasing frequency in children. Beside many similarities there are significant differences between adult and pediatric IBD in terms of disease progression, diagnostic accuracy of serologic assays and extra intestinal manifestation frequencies. For example indeterminate colitis is more prevalent in pediatric age group. Inflammatory bowel disease in children tent to have more extra-intestinal involvement, increased risk of disease progression from proctitis to pancolitis in ulcerative colitis and increased large bowel involvement in crohn disease comparing to adults (1). Moreover child being a growing organism can face severe impairment of growth and development.

The discovery of H.pylori set up another revolution in gastroenterology. It switched the peptic ulcer treatment from extensive gastric surgery to antimicrobial treatment. With the help of several noninvasive tests (Urea breath test) and invasive tests, knowledge about H. Pylori infection in children and its clinical reflection is increasing by time. We know that H.pylori accusation stars before 10 years of age and it is strongly associated with duodenal ulcer also in children (%33-100) (2). However the clinical implication of H.pylori infection in children is still somewhat challenging and needs to be further clarified.

Although uncommon in general pediatrics clinics the incidence of upper gastrointestinal (GI) bleeding in pediatric intensive care units (PICU) is about 6% and it account to 4.8% of upper GI endoscopies performed in children (3,4). Though rarer than adults it can be rather life threatening especially in small children because of their small blood volume. More than half of the upper GI bleeding cases are duo to varices in east whereas extravaricial causes seems to be predominant in the west (5-8). With development of equipments suitable for pediatric endoscopes some of the techniques applied in adults to stop the bleeding and prevent recurrence are now eligible in children.

Although with the advance of magnetic resonance imaging cholangio-pancreoto-graphy (MRCP) endoscopic retrograde cholangio-pancreotography (ERCP) is seldom performed in children for diagnostic purposes, ERCP and endosonography highlighted to the etiology of pancreatitis in children. Significant advances have been made in our understanding of chronic pancreatitis. But still accurate diagnostic modalities have to be defined.

Certainly endoscopy was not the only leading subject in the field of pediatric gastroenterology. In fact it was insufficient in the diagnosis of gastroesophagial reflux disease (GERD). Though main cornerstone in many disorders neither the history nor the physical examination was sufficient. With the development of other diagnostic modalities such as ph monitorizastion or intraluminal impedance measurement GERD now can be diagnosed even under 8 years of age where symptoms are unreliable.

In the field of pediatric gastroenterology our understanding is expanding rapidly. Currently we know that the gastrointestinal system does not

provide only a surface for nutrient digestion, absorption and fluid and electrolyte homoeostasis but it is also an immunologic organ with various defense mechanisms. It harbors huge, different microorganisms so called "The Gut Microbiata". Several beneficial effects of this microbiata like trophic effect, increasing gut maturity, nutrient availability, and competition for nutrient and host receptors with pathogens, barrier integrity enhancement attracted attention to the term "probiotics". Some of the sheltered micro-organisms are in probiotic nature but some are pathogenic. And the gut epithelia discriminates harmless and harmful bacteria. Despite the huge daily oral antigen presentation oral tolerance develops and the gut immune system overlooks most of the presented food antigens. Understanding of these mechanisms will have important future implications. Clarifying the interaction between gut epithelia, gut microbiata and allergens will lead to development in the treatment of several allergic, immunologic and gastroenterological diseases like food hyper-sensitivity, necrotizing enterocolitis (NEC) and inflammatory bowel disease. From this point of view advance in pediatric gastroenterology will bring development in other pediatric sub-specialties such as immunology, nutrition and allergy.

In this special issue some of diseases in the field of pediatric gastroenterology will be reviewed with their current therapeutic and diagnostic advances and future implications.

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