VOLUME-7, ISSUE-5, MAY-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Gastroenterologist

INFLAMATORY BOWEL DISEASE IN CHILDREN

Dr Varun Khandagle* Consultant Gastroenterologist Gastrocare Hospital,Bhopal *Corresponding Author

Dr Prakash Zacharias Consultant Gastroenterologist PVS Memorial hospital ,Kochi

ABSTRACT

Aims & Objectives: To study the clinical profile and effect on growth of inflammatory bowel disease in pediatric patients in a tertiary care centre in Kerala and to explore the various treatment modalities used in pediatric inflammatory bowel disease patients.

Methodology: All patients were subjected to colonoscopy, Endoscopy and biopsies were taken from different areas. Their findings were confirmed on histopathological examinations.

Decision to perform imaging studies including USG, Barium study, CT or dynamic contrast enhanced MRI were done on a case to case basis. Final diagnosis was confirmed after combining clinical, radiological & endoscopic diagnosis & histopathological examination of endoscopic biopsy specimen. Patients were followed up periodically for surveillance.

Results: Abdominal pain was the predominant symptom in 76% of CD patients however only 50% of UC patients had abdominal pain. Though all UC patients had diarrhea, only 62.5% had blood in stool. Only 40% of CD had diarrhea as predominant symptom. Systemic symptoms including fever, anorexia were more common in CD (60%) than in UC(25%). Around 5% of Crohn's and 62 % UC had weight loss at presentation. According to Paris classification, in our study the number of UC patients having Left sided colitis (E2) were 3(37.5%) followed by Pancolitis (E4) in 2 (25%) and Proctitis (E1) in 2 (25%) patients.

Conclusion: The peak incidence of IBD occurs in patients between the ages of 15 and 25 years. As compared with adults, children with IBD more likely present with extensive intestinal involvement and they have rapid clinical progression .The presence of diarrhea, bloody diarrhea and urgency to defecate were found statistically significant between UC and CD groups. Both ulcerative colitis and Crohn's disease, are chronic conditions with remissions and relapses and are associated with significant long-term morbidity

KEYWORDS : Inflammatory bowel disease (IBD) , Crohn's disease (CD) , Ulcerative Colitis (UC)

INTRODUCTION

Inflammatory bowel disease (IBD) comprises of two important entities Crohn's disease (CD) and Ulcerative Colitis (UC) based on clinical, laboratory, radiologic, endoscopic and histologic features. Twenty five percent of patients diagnosed with IBD are in the pediatric age range, although they are mostly seen in children more than 6 years of age.

Both ulcerative colitis and Crohn's disease, are chronic conditions with remissions and relapses and are associated with significant long-term morbidity. UC affects only the colon and is primarily confined to the mucosal and to a lesser degree, to the submucosal compartments. In contrast, CD can involve any component of the gastrointestinal tract from the oral cavity to the anus and may involve all layers of the gut.

Though our current understanding of the pathogenesis of CD and UC is incomplete, recent advances have highlighted the role of microbiota, genes and host immune responses. The widely accepted hypothesis is interactions between the gut luminal contents (especially the intestinal microflora) and the mucosa leading to dysregulated inflammation in a genetically predisposed host. Environmental factors those determine the composition of gut flora might be most important in pathogenesis of IBD. They include composition of diet,breast feeding, hygiene and many others.

Epidemiologically, the Asia–Pacific region is said to have low incidence of IBD, but confusion always existed as to whether this low incidence was a resultant of low diagnostic awareness on part of clinicians, a high incidence of infective diarrhoea and its diagnostic overlap or a true low incidence in this area. There exists a genetic predisposition of South Asians (Indians, Pakistanis and Bangladeshis) to ulcerative colitis (UC). Studies show certain racial groups are more prone than others to develop IBD.

The peak incidence of IBD occurs in patients between the ages of 15 and 25 years. 11 As compared with adults, children with IBD more likely present with extensive intestinal involvement and they have rapid clinical progression. Children also are more likely to have a family history of IBD, suggesting a stronger genetic association for IBD presenting during childhood.12 Growth failure is the most common extraintestinal manifestation of inflammatory bowel disease (IBD) in children, and is particularly common among those with Crohn's disease (CD) . The natural history of IBD in children is poorly understood and a very limited number of population-based studies are available, most of them carried out prior to the era of immunomodulator and biological agents. Although pediatric IBD is becoming more common, multiple hurdles exist in conducting clinical trials in children. There is a need for a consensus to highlight pediatric specific issues and guidelines to approach and manage these conditions.

In view of paucity of such data from India, where increasing prevalence of this disease assumes greater relevance & given the limitations of resources, a prospective observational study was designed in a hospital based setting to study the clinical profile, based on clinical and laboratory parameters in pediatric IBD patients.

METHODOLOGY

The present study was conducted in the Department of Gastroenterology , PVS Memorial Hospital, Kaloor, Kochi. After the approval of protocol by the Hospital Ethics Committee and obtaining informed consent from the patient, a total number of 53 patients were included.

Inclusion criteria:

All children (< than 17 years of age) suspected of or diagnosed inflammatory bowel disease, from the medical wards and OPD of PVS Memorial Hospital, Kaloor, Kochi.

Exclusion criteria:

Patients above 17 years of age.
Patients for whom consent cannot be obtained.
Patients whose workup is not complete.

Study design: Prospective Observational Study

Study Population All the children (< than 17 years age) with diagnosis of IBD, from the medical wards and OPD of PVS Memorial Hospital, Kaloor, Kochi.

Each patient was enrolled into the study after an informed consent is taken. At the time of recruitment, each patient with his relative was personally interviewed to ascertain the information on various symptoms, socio demographic characteristics, past, personal and family history followed by standardized clinical examination.

Blood samples for complete blood count, liver fuction tests, renal function tests, ESR, CRP, ASCA, ANCA and stool sample for routine examination, culture were obtained from each participant after interviewing with standardized questionnaire.

All patients were subjected to colonoscopy, Endoscopy and biopsies were taken from different areas. Their findings were confirmed on histopathological examinations.

Decision to perform imaging studies including USG, Barium study, CT or dynamic contrast enhanced MRI were done on a case to case basis.

Final diagnosis was confirmed after combining clinical, radiological & endoscopic diagnosis & histopathological examination of endoscopic biopsy specimen. Patients were followed up periodically for surveillance.

Patients with IBD (UC and CD) were diagnosed using standard criteria as ESPGHAN revised Porto criteria..The phenotypic characterization of IBD patients was done using Paris modification of Montreal classification.

a. Body mass index (BMI) was calculated according to the standard formula.
b. Height & weight records were measured at each follow up visit in hospital & patients will be described as undernourished if anthropometric measurements were lower as compared to healthy subjects .(< 5th centile)
c. Laboratory parameters: Values were estimated using standard techniques.

DIAGNOSIS — There are no specific diagnostic criteria for IBD. The diagnosis of IBD was established by the combination of clinical features, with or without laboratory abnormalities, coupled with characteristic findings on imaging and endoscopy, including histopathologic analysis. Endoscopy and imaging also help to exclude some other causes of the symptoms, and usually can distinguish between UC and CD.

Diagnostic approach — IBD were suspected in a child presenting with one or more of the following clinical features: Bloody diarrhea. Growth failure (subnormal gains in height or weight, or weight loss) or pubertal delay. Chronic watery diarrhea. Chronic abdominal pain, especially in the right lower quadrant .

Perianal abscesses, fistulae, and fissures, oral ulcers, or arthritis
Laboratory abnormalities including anemia, elevated white blood cell and platelet count, elevated erythrocyte sedimentation rate (ESR), elevated C-reactive protein (CRP), depressed albumin level, occult blood in the stool.

Small bowel imaging (Eg. abdominal magnetic resonance (MR) enterography, upper gastrointestinal series with small bowel follow-through) Endoscopy – Usually both colonoscopy and upper endoscopy. Depending on the dominant clinical symptoms, testing to exclude other conditions also may be required. Stool testing for enteric pathogens — Patients presenting with diarrhea (especially bloody diarrhea) should be evaluated with a stool culture.

Endoscopy , Colonoscopy should be performed in patients with suspected IBD, even in the absence of clear lower gastrointestinal symptoms such as bloody diarrhea. During colonoscopy, the terminal ileum should be examined if possible, and random biopsies should be taken from the terminal ileum and from each segment of the colon. The specimens should be labeled separately for histopathology examination to document the location of microscopic abnormalities.

Imaging — In addition to endoscopy, imaging of the upper gastrointestinal tract (esophagus, stomach, duodenum, and the small intestine) is recommended, primarily to distinguish between UC and CD. Upper GI series with small bowel follow-through (UGI/SBFT) or magnetic resonance (MR) enterography. Computed tomography (CT) – with oral contrast.

OBSERVATION TABLES

Study population consisted of 51 patients of IBD diagnosed during the period of two years. (April 2014 to May 2016). Of them, 8 (15.6 %) were diagnosed to have ulcerative colitis and 43 (84.4 %) Crohn's disease. None of them were IBD-U. Proportion of IBD patients were maximum 44 (86.3%) in 10 to 17 years age group. Mean age of presentation in study population was 14.29 ± 3.29 years. The difference between mean age of presentation in UC and CD groups was statistically significant.

Table 1: SYMPTOMS AT PRESENTATION

Clinical features	Diagnosis		Total (n=51)	P value
	UC (n=8)	CD (n=43)		
Abdominal pain	4(50%)	33(76.7%)	37(72.5%)	0.192
Diarrhea	8(100%)	18(41.9%)	26(51%)	0.004**
Bloody diarrhea	5(62.5%)	4(9.3%)	9(17.6%)	0.002**
Wt loss	5(62.5%)	32(74.4%)	37(72.5%)	0.668
Fever	1(12.5%)	13(30.2%)	14(27.5%)	0.419
Anorexia	1(12.5%)	13(30.2%)	14(27.5%)	0.419
Melena	0(0%)	4(9.3%)	4(7.8%)	1.000
Heartburn	2(25%)	5(11.6%)	7(13.7%)	0.300
Painful defecation	0(0%)	15(34.9%)	15(29.4%)	0.087+
Urgency to defecate	7(87.5%)	7(16.3%)	14(27.5%)	<0.001**
Perianal pain	0(0%)	12(27.9%)	12(23.5%)	0.173
Perianal discharge	0(0%)	8(18.6%)	8(15.7%)	0.327

Table denotes the distribution of symptoms observed in study population. The presence of diarrhea, bloody diarrhea and urgency to defecate were found statistically significant between UC and CD groups.

Table 2: EXTENT OF ASSESMENT (ENDOSCOPY)

ENDOSCOPY	Diagnosis		Total (n=51)
	UC (n=8)	CD (n=43)	
Colonoscopy & biopsy	8(100%)	43(100%)	51(100%)
Terminal illeum seen	8(100%)	41(95.3%)	49(96.1%)
Endoscopy with antral & duodenal biopsy	8(100%)	43(100%)	51(100%)

Table 3: ENDOSCOPIC FINDINGS IN STUDY POPULATION – (ULCERATION)

ENDOSCOPIC FINDINGS	Diagnosis		Total (n=51)	P value
	UC (n=8)	CD (n=43)		
No ulcers	0(0%)	7(16.3%)	7(13.7%)	0.579
Apthous ulcers	8(100%)	16(37.2%)	24(47.1%)	0.001**
Deep Ulcers	0(0%)	12(27.9%)	12(23.5%)	<0.001**
(Apthous + Deep)	0(0%)	8(18.6%)	8(15.7%)	0.327

Table 4: HISTOLOGICAL FINDINGS IN STUDY POPULATION

HISTOLOGY	Diagnosis		Total (n=51)	P value
	UC (n=8)	CD (n=43		
Architectural Distortion	8(100%)	35(81.4%)	43(84.3%)	0.327
Granuloma	0(0%)	39(90.7%)	39(76.5%)	1.000
Basal plasmacytosis & Eosinophil rich inflammation	8(100%)	29(67.4%)	37(72.5%)	0.088+

Table 5: BIOPSY FINDINGS OBSERVED IN STUDY POPULATION

Antral Biopsy finding	Diagnosis		Total (n=51)	P value
	UC (n=8)	CD(n=43)		
Normal histology	4(50%)	1(2.3%)	5(9.8%)	0.001**
Chronic gastritis &duodenitis	4(50%)	19(44.2%)	23(45.1%)	1.000
Presence of Granuloma	0(0%)	23(53.5%)	23 (45.1%)	0.005**

P<0.001**, Significant, Fisher Exact test

Table shows antral biopsy findings observed in study population. Presence of granuloma with gastritis or duodenitis which was noted only in CD patients 53.5% (23/43), was statistically significant.

Table 6: EXTENT OF UC IN STUDY POPULATION (BASED ON PARIS CLASSIFICATION)

Extent in UC	No of patients (n=8)	%
Proctitis (E1)	2	25.0
Lt. sided colitis (E2)	3	37.5
Extensive colitis (E3)	1	12.5
Pancolitis (E4)	2	25.0

Table 7: DISTRIBUTION OF LOWER GI EXTENT OF CD IN STUDY POPULATION (BASED ON PARIS CLASSIFICATION)

LOWER GI EXTENT	No of patients n=43(%)
No LGI involvement	7 (16.3%)
Distal Ileum with limited cecal (L1)	4(9.3%)
Colonic (L2)	11(25.6%)
Ileocolonic (L3)	21(48.8%)

RESULTS

The study population consisted of 51 patients of IBD, diagnosed during the period of two years(April 2014 to May 2016). Of the 51 patients 8 (15.6 %) were ulcerative colitis and 43 (84.4 %) Crohn's disease. Mean disease duration in all patients was 17.18 ± 6.41 months. It was 16.88 ± 9.57 months in UC patients and 17.23 ± 5.80 months in CD patients

Abdominal pain was the predominant symptom in 76% of CD patients however only 50% of UC patients had abdominal pain. Though all UC patients had diarrhea, only 62.5% had blood in stool. Only 40% of CD had diarrhea as predominant symptom. Systemic symptoms including fever, anorexia were more common in CD (60%) than in UC(25%). Around 5% of Crohn's and 62 % UC had weight loss at presentation. Perianal symptoms like pain and discharge were present in 12(27.9%) and 8(18.6%) patients of CD. The presence of diarrhea, bloody diarrhea and urgency to defecate was found statistically significant between UC and CD

Superficial aphthous ulcers were the most common ulcers seen in 24(47.1%) out of total 51 patients. All the 8 UC patients had superficial ulcers on endoscopy while they were seen in 16(37.2%) of CD group patients. Amongst CD group, 12(27.9%) had 64 deep ulcers while 8(18.6%) had superficial aphthous and deep ulcers. Deep ulcers were classically absent in UC group. Presence of aphthous ulcers in UC and deep ulcers in CD were statistically significant.

Growth failure was seen in one third and one -half of UC and CD respectively. Microcytic anemia, thrombocytosis, raised ESR and CRP were common in half the cases. The latter two correlated well with disease activity. Macroscopic upper GI abnormalities, erosions and ulcerations, were present in one third and microscopic upper GI involvement in the form of gastritis or duodenitis was seen in half the patients. Histological presence of granuloma with gastritis or duodenitis was seen in half and focal enhancing gastritis in two third of CD patients. According to Paris classification, in our study the number of UC patients having Left sided colitis (E2) were 3(37.5%) followed by Pancolitis (E4) in 2 (25%) and Proctitis (E1) in 2 (25%) patients. Based on Paris classification, half of our UC patients (4 out of 8) had severe disease (PUCAI > 65)

Statistical analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.

Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale between two groups (Inter group analysis) on metric parameters. Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups.

DISCUSSION

This is a prospective single centre study on the clinical profile of pediatric IBD in a tertiary care centre in Kerala. The study population consisted of 51 patients of IBD, diagnosed during the period of two years(April 2014 to May 2016). Of the 51 patients 8 (15.6 %) were ulcerative colitis and 43 (84.4 %) Crohn's disease.

This result is similar to other studies from south India by M. Sathiyasekaran et al wherein CD was more common than UC. However reports from north India have showed UC to be predominant type of IBD. The prevalence of IBD in children ranges from 3 to 7 per 100,000 .Globally, children appear to have greater predisposition to CD than UC . Majority of patients 44 (86.3%) out of 51 were in 10 to 17 years age group. These observations in mean age value are slightly higher than those reported in study by M. Sathiyasekaran et al wherein mean age for UC and CD was 11.02±4.5 and 10.2±4.4 years, respectively. Recent multiracial Asian study among children in Singapore noted the mean age of onset of IBD was 10.5 years. Contrary to this, in the Welsh study, the mean age of presentation was slightly higher at 12.1 years for CD and 12.7 years for UC. Pediatric IBD consortium has also documented that most common age group 12 to 18 years.[1,2,3] Therefore, early diagnosis helps in early initiation of treatment and thus prevents stunted growth, which is an important goal for improving treatment outcome. Delay in seeking medical attention, vague and generalized symptoms, non-bowel related presentation, ignorance and lack of standardized evaluation protocol for IBD in children are the likely causes of delay in diagnosis and initiation of treatment of children with IBD.

Abdominal pain was the predominant symptom in 76% of CD patients however only 50% of UC patients had abdominal pain. Though all UC patients had diarrhea, only 62.5% had blood in stool. Only 40% of CD had diarrhea as predominant symptom. Systemic symptoms including fever, anorexia were more common in CD (60%) than in UC(25%). Around 5% of Crohn's and 62 % UC had weight loss at presentation. The presence of diarrhea, bloody diarrhea and urgency to defecate was found statistically significant between UC and CD groups.Similar observations has been reported in the West wherein 67 % to 93 % of UC presented with diarrhea compared to 52 % to 78 % of CD when data from several pediatric IBD studies was compiled. 145 Children with UC in this study presented more often with diarrhea and blood in the stools compared to those with CD similar to the findings reported in other Indian and western studies. Pediatric IBD and adult IBD share similar GI symptoms which include the triad of abdominal pain, chronic diarrhoea, and weight loss139 was found in more than half of our patients. [4,5,6]

IBD is associated with growth failure due to the chronic nature, the delay in diagnosis and malabsorption associated with the disease. The height, weight and BMI impairment in two groups was not found to be statistically significant. Inflammatory markers including raised ESR (> 20 mm / hr) was present in 43(84.3%) of the study population and raised CRP levels (> 6 mg/dl) were observed in 39(76.5%). In CD, 32(74.4%) and UC 7 (87.5%) had raised CRP levels. The exact mechanism underlying the differences in CRP concentrations according to lesion location is not well understood. All the 51 children underwent colonoscopy with segmental biopsies. Ileum was not visualized in 2 CD patients due to presence

of stricturing disease at IC junction. Ileal biopsies for evaluation were taken from all the remaining 49 patients. All the 51 children underwent OGD scopy with antral and duodenal biopsies.

The radiological methods like CT or MRI was used to assess the extent of small bowel disease in children. Small bowel evaluation was done in total 44(86.3%) patients. In UC group 3(37.5%) and in CD group 41(95.3%) patients underwent small bowel evaluation. Reason for doing small bowel evaluation in UC group was presence of atypical phenotypes like macroscopic rectal sparing and shorter disease duration. Of these, 40 children underwent CT for small bowel evaluation and 4 underwent MRI. CT enterography was preferred because CT was feasible, cheaper and available in house.

Presence of aphthous ulcers in UC and deep ulcers in CD were statistically significant. In our data, out of total 51 patients, cobblestoning, bowel stenosis and skip lesions were present in 16(31.4%), 9(17.6%) and 34(66.7%) respectively, all of them being in the CD group.

Granuloma was present in CD patients 90.7% (39/43) which was statistically significant. Features like basal plasmacytosis & eosinophil rich inflammation were observed in 37(72.5%) out of total 51 patients. All 8(100%) UC patients and 29(67.4%) CD patients had basal plasmacytosis & eosinophil rich inflammation.

UGI scopy was abnormal in 22 (43.1%) patients. Antral/ duodenal erosion and ulcerations were the major findings observed in 17(33.3%) and 4(7.8%) patients respectively. GERD was seen in only 1(1.9%) patient having CD. Comparing with adults as in a recent study published by Carmen S. et al. in which they found macroscopic findings were detected at upper GI endoscopy in 55% (60/108) patients with CD while none of the 44 UC patients had macroscopic abnormalities.

Abnormal histology findings were seen in 90.2% of patients and more patients with CD had these changes 97.7% . Granuloma with gastritis or duodenitis was noted only in CD patients involving 53.5% and it was statistically significant as compared to UC.

Focal enhancing gastritis (FEG) was observed on UGI biopsy in 36(70.6%) of total study population. This was seen in 37.5% (3/8) patients with UC and 76.7% (33/43) of CD and the difference was statistically significant. These findings were higher than those observed in study done by Kleoniki Roka et al. comparing findings on UGI scopy in IBD and non IBD children. They found FEG was seen in 35.7% children with IBD. All types of IBD had significantly higher frequencies of FEG compared to non-IBD individuals (Crohn'sdisease:54.1%, ulcerative colitis: 21.6%).156In a recent study published by Carmen S. et al. they found histological abnormalities in 71% CD and 43% (19/44) adult UC patients. FEG was found in 54% (58/108)CD and 23% UC patients. Granulomas in stomachand/or duodenum biopsies were found in 31% patients with CD.[7] According to Paris classification, in our study the number of UC patients having Left sided colitis (E2) were 3(37.5%) followed by Pancolitis (E4) in 2 (25%) and Proctitis (E1) in 2 (25%) patients. These findings differ from those observed in other Indian pediatric studies in which 66/93 (70.9%) had pancolitis (E3), followed by left-sided colitis (E2) in 24 (25.8 %) and proctocolitis (E1) in 3 (3.2 %).Recent Korean study and EUROKIDS data also showed high proportion of extensive disease (E3, Korea 57.6% and EUROKIDS 68.7%). This could be due to small number of cases in UC group. [8,9,10]

Based on Paris classification, half of our UC patients (4 out of 8) had severe disease (PUCAI > 65) which differs from that of observed in Indian study in which moderate to severe disease was present in 87.2% children. Reason for these variations in our study could be the small number of patients in UC group which led to skewing of results as compared to studies having larger sample size. [8]

Rectal sparing is typically seen in large-bowel CD patients, whereas UC is associated with confluent proctitis. Macroscopic rectal sparing, UGI involvement and presence of acute severe colitis, which are the atypical phenotypes listed by ESPGHAN in revised Porto criteria , were present in 25% (2/8) of children in our study which is comparable with 23% (7/30) macroscopic rectal sparing noted in study done by Rajwal S, Puntis J et al. However data from EUROKIDS registry showed 5% children had macroscopic rectal sparing which is quite low as compared to our study.[10,11]

The lower GI extent of CD according to Paris classification was seen more commonly in Ileocolonic (L3) region in 21(48.8%) children, followed by 11(25.6%) in colonic (L2) region. Macroscopic LGI involvement was not seen in 16.3% (7/43) patients. Similar findings were noted in an Indian multicenter study 21 showing ileocolonic (L3) region as the most commonly involved in (72.9%, 89/122), (50%, 15/30) in Korean study and (52.8%,307/582) in data from EUROKIDS registry. [9,10]

The UGI disease extent in CD according to Paris classification was seen more commonly in distal Upper disease (L4b)region in 18(41.9%) children, followed by both proximal and distal upper disease (L4a + L4b) present in 6(14%) children. Overall UGI disease was present in 29(68%). In a study from France, prevalence of upper GI involvement at diagnosis was seen in about 36% which is comparable with the finding in our series. The changing pattern of location as quoted in study was characterized by a decrease in the percentage of patients with pure ileal and colonic disease and an increase in patients with upper GI involvement. [12] The disease phenotype in CD differs in both pediatric and adult populations with IBD. Pediatric CD presents predominantly with inflammatory or non-stricturing, non-penetrating disease and can progress to stricturing and penetrating disease while on treatment. Similar results were noted in Korean study showing (B2B3) phenotype as predominant in 70% (21/30) and in data from EUROKIDS registry 82% (477/582). Indian multicenter pediatric IBD study 21 has shown stricturing (6.5 %) and fistulising (11.4 %) disease compared to 19 % and 4.4 % reported in the adult IBD. Among the different types of therapies used, maximum number of children received azathioprine 43(84.3%) followed by ASA in 40(78.4%) patients. Among patients with UC, ASA was used in all followed by steroids (oral + IV) in 3(37.5%) patients. [9,10] Surgery was needed in 5(9.8%) out of total patients in study and all of them were from CD group as none of the UC patients required surgery in study period. The surgical procedures included laparoscopic illeocaecal resection in one patient, laparoscopic stricturoplasty in one and 3 patients underwent fistulectomy procedure.

Analysing the similarities and differences in the characteristics of pediatric IBD between developing and developed countries may help in understanding the pathogenesis and patterns of disease. Our data show many similarities to data from North America and Europe. like slight preponderance of males (58.8%), higher age at time of diagnosis (peaking between 10 and 17 years of age), predominance of abdominal pain, diarrhoea, weight loss, and blood in stool at presentation, the ileocolonic region (L3) being predominantly affected, and predominance of nonstricturing, nonpenetrating behaviour phenotype. In contrast, the frequency of stricturing and penetrating behaviour of CD is more frequent in Asian children when compared with pediatric CD in Western The frequency of family history of IBD in first-degree relatives in our data (7.8 %) was lower than reported in North America(30%). [13,14,15]

CONCLUSION

In this study, Crohn's disease was the predominant IBD subtype in children accounting for more than two thirds of cases Most common age group of presentation was between 10 to 17 years. Abdominal pain and weight loss were common symptoms at presentation in CD while diarrhoea and blood in stool were common in UC. Extraintestinal manifestations involving oral cavity, skin or joints were present in more than a third of patients (50% in UC and 40% in CD) .

This finding may be helpful in differentiating Crohn's colitis from UC when other findings are non contributory. In UC, left sided colitis

(E2) was the common phenotype observed. Half of the children had acute severe colitis at presentation. Atypical phenotypes as per the Porto criteria viz. upper GI involvement (antral / duodenal erosion), macroscopic rectal sparing and acute severe colitis were found in one fourth. In CD patients, ileocolonic (L3) and distal Upper (L4b)regions were commonly involved in half the patients. Nonstricturing and nonpenetrating (B1) behaviour was the common phenotype noted.

In UC, ASA was used in all patients while one third of the patients required steroids for induction of remission. In CD, steroids were used for induction of remission in two thirds followed by azathioprine for maintenance. ASA was used along with azathioprine in two third of patients. Biologicals were needed in 7% of CD patients. Twelve percent of CD patients required surgical intervention. Side effects of medications were documented in about one fourth patients.

References

1. Sathiyasekaran M, Bavanandam S, Sankaranarayanan S, Mohan N, Geetha M, Wadhwa N, Kehar M, Biradar V. A questionnaire survey of pediatric inflammatory bowel disease in India. Indian Journal of Gastroenterology. 2014 Nov 1;33(6):543-9.
2. Chu HP, Logarajah V, Tan N, Phua KB. Paediatric inflammatory bowel disease in a multiracial Asian country. Singapore Med J. 2013 Apr 1;54(4):201-5.
3. Roussomoustakaki MA, Satsangi JA, Welsh K, Louis E, Fanning GR, Targan ST, Landers CA, Jewell DP. Genetic markers may predict disease behavior in patients with ulcerative colitis. Gastroenterology. 1997 Jun 1;112(6):1845-53.
4. Prideaux L, Kamm MA, De Cruz PP, Chan FK, Ng SC. Inflammatory bowel disease in Asia: a systematic review. Journal of gastroenterology and hepatology. 2012 Aug 1;27(8):1266-80.
5. Imielinski M, Baldassano RN, Griffiths A, Russell RK, Annese V, Dubinsky M, Kugathasan S, Bradfield JP, Walters TD, Sleiman P, Kim CE. Common variants at five new loci associated with early-onset inflammatory bowel disease. Nature genetics. 2009 Dec;41(12):1335.
6. Lakatos PL. Recent trends in the epidemiology of inflammatory bowel diseases: up or down?. World journal of gastroenterology: WJG. 2006 Oct 14;12(38):6102.
7. Roka K, Roma E, Stefanaki K, Panayotou I, Kopsidas G, Chouliaras G. The value of focally enhanced gastritis in the diagnosis of pediatric inflammatory bowel diseases. Journal of Crohn's and Colitis. 2013 Nov 1;7(10):797-802.
8. Buchner AM, Shahid MW, Heckman MG, Krishna M, Ghabril M, Hasan M, Crook JE, Gomez V, Raimondo M, Woodward T, Wolfsen HC. Comparison of probe-based confocal laser endomicroscopy with virtual chromoendoscopy for classification of colon polyps. Gastroenterology. 2010 Mar 1;138(3):834-42.
9. Myung SJ, Yang SK, Jung HY, Chang HS, Park J, Hong WS, Kim JH, Min Y. HLA-DRB1* 1502 confers susceptibility to ulcerative colitis, but is negatively associated with its intractability: a Korean study. International journal of colorectal disease. 2002 Jul 1;17(4):233-7.
10. De Bie CI, Buderus S, Sandhu BK, De Ridder L, Paerregaard A, Veres G, Dias JA, Escher JC, EUROKIDS Porto IBD Working Group of ESPGHAN. Diagnostic workup of paediatric patients with inflammatory bowel disease in Europe: results of a 5-year audit of the EUROKIDS registry. Journal of pediatric gastroenterology and nutrition. 2012 Mar 1;54(3):374-80.
11. Rajwal SR, Puntis JW, McClean P, Davison SM, Newell SJ, Sugarman I, Stringer MD. Endoscopic rectal sparing in children with untreated ulcerative colitis. Journal of pediatric gastroenterology and nutrition. 2004 Jan 1;38(1):66-9.
12. Fleischer D. Etiology and prevalence of severe persistent upper gastrointestinal bleeding. Gastroenterology. 1983 Mar 1;84(3):538-43.
13. Bousvaros A, Antonioli DA, Colletti RB, Dubinsky MC, Glickman JN, Gold BD, Griffiths AM, Jevon GP, Higuchi LM, Hyams JS, Kirschner BS. Differentiating ulcerative colitis from Crohn disease in children and young adults: report of a working group of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition and the Crohn's and Colitis Foundation of America. Journal of pediatric gastroenterology and nutrition. 2007 May;44(5):653-74.
14. Shivananda S, Lennard-Jones J, Logan R, Fear N, Price A, Carpenter L, Van Blankenstein M. Incidence of inflammatory bowel disease across Europe: is there a difference between north and south? Results of the European Collaborative Study on Inflammatory Bowel Disease (EC-IBD). Gut. 1996 Nov 1;39(5):690-7.
15. Stange EF, Travis SP, Vermeire S, Reinisch W, Geboes K, Barakauskiene A, Feakins R, Fléjou JF, Herfarth H, Hommes DW, Kupcinskas L. European evidence-based consensus on the diagnosis and management of ulcerative colitis: definitions and diagnosis. Journal of Crohn's and Colitis. 2008 Mar 1;2(1):1-23.