



## Original Article

# Clinical and Aetiological Pattern of Chronic Diarrhoea in a Tertiary Care Hospital.

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### Abstract

Chronic diarrhoea is one of the most common conditions facing both primary care clinicians and gastroenterologists. The present study was a cross-sectional study conducted on 100 patients at the Department of Medicine and Gastroenterology of Sir Salimullah Medical College, Mitford Hospital, Dhaka. Patients with chronic diarrhoea of at least 4 weeks duration were enrolled in the study. Data were collected using a structured questionnaire. The mean age was 39.14 ± 14.74 years with a range of 18 to 70 years. The male to female ratio was roughly of 2:1. Among the female 24% were housewives. Equal percentages of patients had abdominal pain, anorexia & significant weight loss (64%). Other clinical features were anemia (34%) fever and rectal bleeding (24%). The leading diagnoses were irritable bowel syndrome (34%), ulcerative colitis (18%), intestinal tuberculosis (12%), chronic pancreatitis (6%), carcinoma colon, intestinal lymphoma, non specific colitis & Crohn's disease (4% each). Endoscopy of upper GIT was done in 14% patients, colonoscopy 66%, double balloon enteroscopy 6% and specific histological diagnosis found in 56%, 10% was non-specific, 6% was diagnosed by ultrasound and 1% by stool routine examination. It was found that IBS, inflammatory bowel disease and intestinal tuberculosis are the leading cause in our country. Aetiology of chronic diarrhoea can be diagnosed by good history, clinical examinations and an appropriate investigation of which colonoscopy is most useful.

**Key words:** Aetiology, Chronic diarrhoea.

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### Introduction

Diarrhoea may be defined in terms of stool frequency, consistency, volume, or weight. Patients' conceptions of diarrhoea often focus around stool consistency<sup>1</sup>, other criteria, such as the passage of more than three stools per day or stool weight, provide alternative means of definition. A stool weight of 200 g/day is often regarded as the upper limit of normal<sup>2</sup>, but this can be misleading as stool weights vary greatly

and "normal" stool volumes can exceed this value, particularly when non-Western diets are encountered. A pragmatic definition incorporates these elements: diarrhea is the abnormal passage of loose or liquid stools more than three times daily and/or a volume of stool greater than 200 g/day. Faecal incontinence in particular is commonly misinterpreted as diarrhoea<sup>3</sup>. Most physicians will accept that symptoms persisting for longer than four weeks suggest a non-

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infectious a etiology and merit further investigation<sup>4</sup>. In two population surveys, Talley *et al* reported a prevalence of “chronic diarrhoea” of between 7% and 14%<sup>5,6</sup>.

Causes of chronic diarrhoea: Colonic- colonic neoplasia, ulcerative and crohn’s colitis, microscopic colitis. Small bowel- intestinal TB, coeliac disease, crohn’s disease, Other small bowel enteropathies, bile acid malabsorption, disaccharidase deficiency, small bowel bacterial over growth, mesenteric ischemia, radiation enteritis, lymphoma, giardiasis, Pancreatic-chronic pancreatitis, pancreatic carcinoma, cystic fibrosis, Endocrine-hyperthyroidism, diabetes, hypoparathyroidism, addison’s disease, Hormone secreting tumours, “Surgical” causes (e.g. small bowel resections, internal fistulae), Drugs, Alcohol, Autonomic neuropathy .

Presence of iron deficiency is a sensitive indicator of small bowel enteropathies particularly coeliac disease<sup>7</sup>, frequently presenting with diarrhoea due to steatorrhoea and malabsorption. Serological screening studies using IgA antiendomysium antibodies (EMA) have shown a prevalence of between 1:200 and 1:559 in European and North American populations<sup>8-12</sup>. The prevalence is considerably higher when there is an associated autoimmune disease present or in patients with Down’s syndrome<sup>13</sup>. The recent identification of tissue transglutaminase (tTG) as the auto antigen of EMA32 has led to the development of commercial ELISA kits for the detection of anti-tTG antibodies<sup>14</sup>.

Protozoal infections, such as giardiasis and amoebiasis can result in chronic infections. Examination of three fresh stools for ova, cysts, and parasites remains the mainstay of diagnosis and has a sensitivity of approximately 60–90% for detection of these organisms. The use of a stool ELISA (92% sensitivity and 98% specificity) has largely replaced the need for intestinal biopsies and wet preparations<sup>15-17</sup>. Serological testing is not effective in cases of suspected giardiasis but can be useful in amoebiasis where positive serology by an indirect haemagglutination test or ELISA can differentiate invasive disease from the

asymptomatic carrier state<sup>18</sup>. Diarrhoea may be caused by colorectal neoplasia. In addition to neoplasia, colonoscopy also has a diagnostic yield for other conditions ranging from 7% to 31%, with inflammatory bowel disease and microscopic colitis being most commonly found<sup>19, 20-22</sup>. Routine ileoscopy further adds to the value of colonoscopy. In patients in whom a diagnosis of inflammatory bowel disease is suspected, the value of ileoscopy and biopsy is further enhanced: 36% of patients with a normal colonoscopy and diarrhoea had terminal ileal disease<sup>23</sup>. Colonoscopy is also the preferred modality to exclude or confirm microscopic colitis. Lymphocytic and collagenous colitis (collectively called microscopic colitis) are conditions with a similar natural history and often (in 25–30%) overlapping features<sup>23,24</sup>.

Colonoscopy is a more sensitive test than barium enema and given this, and the need to obtain histology to exclude colitis, the former investigation is recommended<sup>25, 26</sup>. Small bowel enteroscopy has been evaluated as a complementary investigation to small bowel barium follow through, either as a means to distinguish small bowel abnormalities or to assess further the small bowel after a negative radiological investigation<sup>27</sup>.

Malabsorption may occur as a result of defective luminal digestion due to lack of pancreatobiliary enzymes, or from failure of absorption due to mucosal disease or structural disorders. Pancreatic exocrine insufficiency is the usual cause of severe and dominant steatorrhoea where faecal fat excretion exceeds 13 g/day. Loss of endocrine function generally occurs late in the course of chronic pancreatitis, although an impaired glucose tolerance test and even frank diabetes mellitus may be found in early or mild disease<sup>27, 28</sup>. ERCP is, at present, the “gold standard” for the diagnosis of chronic pancreatitis and uses the presence of abnormal duct morphology for the detection of chronic pancreatic disease<sup>29</sup>. Diarrhoea in diabetic patients has often been ascribed to abnormalities of small bowel motility due to autonomic neuropathy. Its prevalence is estimated at 2–10%

predominantly occurring in type 1 diabetics with other manifestations of autonomic neuropathy.

Chronic diarrhoea patients in our country is often misdiagnosed and not properly treated. Often people blame various foods for this reason and avoid many nutritious foods. So my study may produce awareness among all level of medical practitioners about the aetiology, patterns of presentation and ways of diagnosis of chronic diarrhoea and thus helping the management of such case in future.

### Material and Methods

The present cross-sectional observational study was carried out in department of Medicine and Gastroenterology, Sir Salimullah Medical College Mitford Hospital, Dhaka from January 2014 to June 2014. Patients attending at indoor and outpatient department (OPD) of Medicine and Gastroenterology with chronic diarrhoea were the study population. A total of 100 patients of chronic diarrhoea were selected for the study. chronic diarrhoea was defined by diarrhoea persisting more than four weeks. IBS was defined according to ROME III criteria. A semi structured questionnaire was prepared after pre-testing containing patient profile. This was used for collection of information by interviewing & examining patients & their reports. Patient's age less than 18 year were excluded. Complete blood count, random blood sugar, Stool routine examination and Ultrasonography of whole abdomen were done in all patients some special investigations like endoscopy of upper gastrointestinal tract, colonoscopy, double balloon enteroscopy, anti-tTG antibodies were done in selected patient.

### Results:

A total of 100 patients of chronic diarrhoea were selected for the study. The purpose of the study was to find out aetiological pattern of chronic diarrhoea. Over one-third (36%) of the patients was of 41-50 years old, followed by 50% below 40 years old; 10% between 51-60 years and the remaining 4% above 60 years of age. The mean age was  $39.14 \pm 14.74$  years and the minimum and maximum ages were 18 and 70 years respectively.

Sixty six patients (66%) were male and the rest thirty four (34%) were female. The male to female ratio was roughly of 2:1. Out of 100 patients, 24% were service holder, 20% businessmen 16% farmer, 8% student and 8% were involved in other professions. Women were mainly housewives (24%). Most of the patients had abdominal pain, anorexia and weight loss (64% each). Rectal bleeding and fever were present in 24% the patients, 14% cases experienced vomiting. Anemia was present in 34% case while edema 12%, ascites 6%, abdominal mass 6% and hepatosplenomegaly in 4% cases. Colonoscopy was done in 66%, USG of abdomen in 54% endoscopy of upper GIT done in 14%, double balloon enteroscopy was done in 6% cases, Anti-Ttg was done in 10%. Biopsy material was taken in 8% of endoscopy of upper GIT done, 56% of colonoscopy done, 6% of double balloon enteroscopy done. Eight biopsies were taken through endoscopic procedure and 2 had confirmed specific diagnosis by histology examination. In colonoscopic and enteroscopic specimens 52 and 2 Specific histological diagnosis were found respectively. Out of 100 patients 8% got specific treatment, 72% got non-specific treatment, 20% got no treatment before study. Out of 100 patients 34% was diagnosed as irritable bowel syndrome, 18% ulcerative colitis, 12% intestinal tuberculosis, 6% chronic pancreatitis, 4% carcinoma colon, 4% intestinal lymphoma, 4% non specific colitis, 4% Crohn's disease, 3% colonic polyp, 2% carcinoma rectum, 1% amoebiasis, and in 8% aetiology could not be ascertained.

### Discussion:

Diarrhoea is made up of two Greek words 'dia' and 'rhein' meaning 'through' and 'to flow' respectively. Hippocrates (460-370 B.C.) gave his clinical and epidemiological description of the entity of diarrhea<sup>30</sup>. The present study was conducted to find out the aetiological pattern, presentation and demographic pattern of sufferers of chronic diarrhoea in Bangladesh.

The mean age of patients was  $39.14 \pm 14.74$  years. Half of the patients (50%) were below 40 years of age while 36% were 41-50 years old. In similar

studies in USA Raj et al.<sup>31</sup> and Kenneth et al.<sup>32</sup> showed that the mean age of the patients of chronic diarrhoea were 51 years and 49 years respectively which are higher than our study population. In this study 50% of the patients were below 40 years as IBS is the commonest cause in our study which occurs in young age<sup>33</sup> In this study sixty six patients (66%) were male and thirty four (34%) were female. The male to female ratio was roughly of 2:1. A recent study<sup>34</sup> done on chronic diarrhoea in Bangladesh shows that over 60% of the patients were male

Aetiology	Percent
Irritable bowel syndrome	34
Ulcerative colitis	18
Intestinal TB	12
Cause could not be ascertained	8
Chronic pancreatitis	6
Carcinoma colon	4
Lymphoma	4
Non specific colitis	4
Chron's Disease	4
Colonic polyp	3
Ca Rectum	2
Amoebiasis	1

and male to female ratio was roughly of 3:2 though IBS is more common in female. In this study 8% was student, 24% was service holder, 16% farmer, 20% businessmen, 24% housewives and 8% involved in other diverse professions indicates that majority of patients came from urban community .

Most of the patients had abdominal pain, anorexia and weight loss (64% each). Anemia was present in 34% case while rectal bleeding and fever were present in 24% cases. However, Rashed<sup>35</sup> in his study showed that 20% had abdominal pain and 91.4% had bleeding per rectum. Raj et al.<sup>31</sup> reported that 43% of the patients had abdominal pain while Rashid<sup>34</sup> showed that 92%

had abdominal pain. Abdominal pain is therefore very common symptom of chronic diarrhoea. In this study anemia was present in 34% case. Rashid<sup>34</sup> and Raj et al.<sup>31</sup> showed in their study anemia were 40% and 15% respectively, so anemia is the commonest sign in chronic diarrhoea cases.

**Table: 1 Aetiological pattern of chronic diarrhoea (n=100)**

In this study colonoscopy done in 66% cases. Not all patients underwent routine colonoscopy because appropriate investigation was done depending upon history and clinical examination. In a recent study Rashid<sup>34</sup> had done colonoscopy in 100% cases but biopsy materials were taken in 60% cases as in 40% colonoscopy were normal. In our study out of 66 cases 56(84.8%) had pathology. Endoscopy of upper GIT done in 14 case and 8(57.1%) had pathology. So colonoscopy is therefore most useful investigation. Ian et al.<sup>36</sup> reported in a study that 35% of gastroenterologists almost always perform rectal biopsy. Double balloon enteroscopy done in patients with normal colonoscopy and endoscopy of upper GIT but suspected to have pathology. Double balloon enteroscopy done in 6 cases and 100% had pathology. Ultrasonography of abdomen was done in 54 cases and pathology found in 14 (25.9%). Ultrasonography of abdomen helps in diagnosis of chronic pancreatitis and other cause of chronic diarrhoea.

In this study Biopsy material was taken in 56 cases among colonoscopy done, 8 cases among endoscopy of upper GIT done, 6 cases among double balloon enteroscopy done. Eight biopsies were taken through endoscopic procedure and 2 had confirmed specific diagnosis by histology examination. In colonoscopic and enteroscopic specimens 52 and 2 Specific histological diagnosis were found respectively.

More than half (56%) of the patients had a specific histological diagnosis, 10% had a histological of nonspecific colitis. Rashid<sup>34</sup> showed in their study nearly half (48%) of the patients had a specific histological diagnosis, 10% had a histological of nonspecific colitis. Ian et al.<sup>36</sup> in their study showed that 87% the histology was entirely normal. In 28 cases (8%) there were

non-specific histological abnormalities. A further search may be needed for this non specific colitis as microscopic colitis increasingly been identified as a cause of diarrhoea in patients with macroscopically normal mucosa<sup>33</sup>.

In this study, before diagnosis 8% got specific treatment, 72% got non specific treatment like antidiarrhoeal 16%, antispasmodics 47%, and antihelminthic 41%, 20% got no treatment. This indicates that majority of chronic diarrhoea cases in our country are misdiagnosed and wrongly treated or untreated.

Thirty four percent patients were diagnosed as irritable bowel syndrome, 18% ulcerative colitis, 12% intestinal tuberculosis, 6% chronic pancreatitis, 4% carcinoma colon, 4% intestinal lymphoma, 4% non specific colitis, 4% Crohn's disease, 3% colonic polyp, 2% Rectal polyp, 2% carcinoma 1% amoebiasis, rectum. In 6% cases aetiology could not be ascertained. Mohammed et al.<sup>37</sup> states that Crohn's disease in 38% and ulcerative colitis was the commonest from accounting for 48% of the patients. Rashed in the study showed that 27.4% had polyps. Raj et al. reported 6 % infectious diarrhoea, 1.9% NSAID associated colitis. 34% patients were diagnosed as having irritable bowel syndrome (IBS). A study conducted by Gonverset al.<sup>38</sup> showed that 21.4% of the patients with IBS. Raj et al.<sup>31</sup> reported on 84 consecutive patients of chronic diarrhoea with final diagnoses that 55.9% of the patients ha IBS, 5.9% infection, 3.6% lactose intolerance, 2.4% bacteria overgrowth, 1.2% medication associated diarrhoea, 3.6% pancreatic insufficiency and 4.8% diabetic diarrhoea. In this study 12% is intestinal tuberculosis and prevalence of tuberculosis is more in our country. In this study our findings is IBS, IBD and intestinal tuberculosis is the most common cause chronic diarrhea which should be kept in mind among all doctors while dealing with chronic diarrhea case.

### Conclusion:

This study summarizes a practical approach to find out aetiology of chronic diarrhoea. Aetiology of chronic diarrhoea can be diagnosed by good history, clinical examinations and an appropriate investigation. It was found that irritable bowel syndrome, inflammatory bowel disease and

intestinal tuberculosis are the leading cause in our country. Colonoscopy is the most useful tool for diarrhea patients.

### Limitations:

Like all other research work the current study also had some limitation. The study included only a single centre with a relatively small sample size which limits generalizability. There was limitation of time period. All investigations were not always feasible. Study was done in a tertiary hospital so the results do not reflect community scenario.

### References:

1. Coremans G, Rutreerts P and Geboes K. The value of ileoscopy with biopsy in the diagnosis of the intestinal Crohn's disease. *GastrointestEndosc* 1984;30:167-72.
2. Read NW, Krejs GJ and Read MG. Chronic diarrhoea of unknown origin. *Gastroenterol* 1980;78:264-71.
3. Yusoff IF, Ormonde DG and Hoffman NE. Routine colonic mucosal biopsy and ileoscopy increases diagnostic yield in patients undergoing colonoscopy for diarrhoea. *J GastroenterolHepitol* 2002;17:276-80.
4. Wenzl HH, Fine KD, Schiller LR, et al. Determinants of decreased fecal consistency in patients with diarrhoea. *Gastroenterology* 1995;108:1729-38.
5. Thomas PD, Forbes A, Green J, Howdle P, Long R, Playford R, et al. Guidelines for the investigation of chronic diarrhoea. *BMJ* 2003:52
6. Sivak Jr., Micheal V. Polypectomy: looking Back. *Gastrointestinal Endoscopy* 2004; 60 (6); 977-82.
7. Talley NJ, Weaver AL, Zinsmeister AR, et al. Self-reported diarrhoea: what does it mean? *Am J Gastroenterol* 1994;89:1160.
8. Dupont HL, Guidelines on acute infectious diarrhoea in adults. *Am J Gastroenterol* 1997;92:1962.
9. Fine KD, Schiller LR. AGA technical review on the evaluation and management of chronic diarrhoea. *Gastroenterology* 1999;108:1729.
10. Wenzl HH, Fine KD, Schiller LR, et al. Determinations of determinations of decreased fecal consistency in patients with diarrhoea. *Gastroenterology* 1995;108:1729.
11. Sellin JH, Intestinal electrolyte absorption and secretion. *Gastrointestinal and Liver Disease Pathophysiology Diagnosis and Management*. 7<sup>th</sup> ed. FELDMAN M, Friedman LS, Sleisenger MH, Eds. WB Saunders Co, Philadelphia, 2002.

12. Paul J, Limburg MD, David A, Ahlquist MD, William J, Sandborn MD, et al. Fecal calprotectin levels predict colorectal inflammation among patients with chronic diarrhoea referred for colonoscopy. *Am J Gastroenterology* 1999.
13. Fine KD, Schiller LR, AGA technical review on the evaluation and management of chronic diarrhoea. *Gastroenterology* 2000; 136:2014.
14. Hammer HF, Santa ACA, Schiller LR, et al. Studies of osmotic diarrhoea induced in normal subjects by ingestion of polyethylene glycol and lactulose. *J ClinInves* 1989;84:1056.
15. Aichbichler BW, Zerr CH, Santa ACA, et al. proton-pump inhibition of gastric chloride secretion in congenital chloridorrhoea. *N Engl J Med* 1997;336: 106.
16. Lawrence R, Schiller M.D. Clinical Professor of Internal Medicine, Division of gastroenterology, university of Texas Southwestern Medical Center at Dallas, 2003.
17. Attar A, Floerie B, Rambaud JC, et al. Antibiotic efficacy in small intestinal bacterial overgrowth-related chronic diarrhoea: a crossover, randomized trial. *Gastroenterology* 1999;117: 794.
18. Thielman NM, Guerrant RL. Persistent diarrhoea in the returned traveler. *Infect Dis Clin North Am* 1998;12: 489.
19. Fine KD, Meyer RL, Lee EL. The prevalence of chronic diarrhoea in patients with celiac sprue treated with a gluten-free diet. *Gastroenterology* 1997;112:1830-30.
20. Stanton B, Clemens JD. Chronic diarrhoea: a methodologic basis for its apparent heterogeneity. *Trop Geogr Me* 1989;41:100-7.
21. Read NW, Krejs GJ, Read MG, Santa ACA, Morawski SG, Fordtran JS. Chronic diarrhoea of unknown origin. *Gastroenterology* 1980;78:264-71.
22. Manatsathit S, Israsena S, Kladcharoen N, Sithicharoenchai P, Roenprayoon S, Suwanakul P. Chronic diarrhoea: a prospective study in Thai patients at Chulalongkorn University Hospital, Bangkok. *Southeast Asian J Trop Med Public Health* 1985; 16: 447-452.
23. Schiller LR, Rivera LM, Santangelo W, Little K, Fordtran JS. Diagnostic value of fasting plasma peptide concentrations in patients with chronic diarrhoea. *Dig Dis Sci* 1994; 39; 2216-22.
24. Lubeck DP, Bennett CL, Mazonson PD, Fifer SK, Fries JF. Quality of life and health service use among HIV-infected patients with chronic diarrhoea. *J Acquir Immune DeficSyndr Hum Retrovirol* 1993; 6:478-484.
25. Halphen M, Galian A, Certin M, Ink F, Filali A, Rambaud J-C. Clinicopathological study of a patient with idiopathic villous atrophy and small vessel alternations of the ileum. *Dig DicSci* 1989;34:111-7.
26. Zins BJ, Tremaine WJ, Carpenter HA. Collagenous colitis: mucosal biopsies an association with fecal leukocytes. *Mayo ClinProc* 1995;70:430-
27. Marshall JB, Singh R, Diaz-Arias AA. Chronic, unexplained diarrhoea: are biopsies necessary if colonoscopy is normal? *Am J Gastroenterol* 1995;90:372-6.
28. Nostrant TT, Kumar NB, Appleman HD. Histopathology differentiates acute self-limited colitis from ulcerative colitis. *Gastroenterology* 1987;92:318-28.
29. Fine, KD, Schiller, LR. AGA technical review on the evaluation and management of chronic diarrhoea. *Gastroenterology* 1999;116:1464-86.
30. Adam F. The genuine work of Hippocrates. London: Sydenham Society; 1849.
31. Raj J, Shah MD, Cecilia FPMD, Brain L, Bleau MD, et al. Usefulness of Colonoscopic with Biopsy in the evaluation of patients with chronic diarrhoea. *The American Journal of Gastrology* 2001;96(4).
32. Kenneth D, Fine MD, Richard H, Seidel MD, Kim Do MD. The prevalence, anatomic distribution and diagnosis of colonic causes of chronic diarrhoea 2000; 51(3):318-26.
33. Longo DL, Kasper DL, Jameson JL, Fauci AS, Hauser SL, Joseph L. Harrison's Principles of Internal Medicine. 18th Edition. USA: The McGraw-Hill Companies; 2012.
34. Rashid T B. Colonoscopic evaluation of chronic diarrhoea: A study of 50 cases. FCPS dissertation. BCPS; 2009.
35. Rashed ARS. Pediatric colonoscopy: King Khali University Hospital Experience. *Saudi J Gastroenterol* 1999; 5: 120-3.
36. Ian FY, Donald GO, Neville EH. Routine colonic mucosal biopsy and ileoscopy increase diagnostic yield in patients undergoing colonoscopy for diarrhoea. *Journal of Gastrology and Hepatology* 2002; 17: 276-80.
37. Mohammed, IEM, Asad MA and Mohammed TAH. Colonoscopy and therapeutic intervention in infants and children. *GastrointestEndoseClin N Am* 1994;4: 143-60.
38. Gonvers JJ, Bochud M, Burnand B, Froehlich F, Dubois RW, Vader JP. Appropriateness of colonoscopy: Diarrhoea. *Endoscopy* 1999; 31(8): 641-

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