

## Diseases in Chronic Non-infective Diarrhea

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### ABSTRACT

*Background:* Chronic diarrhea is common in Indonesia. The chronic non-infective diarrhea cases seem to be increasing recently. The aim of this study is to reveal the pattern of diseases that can cause chronic non-infective diarrhea.

*Materials & Methods:* We examined all patients suffering from chronic non-infective diarrhea over a six years period. The patients underwent physical examination and performed laboratory tests, colon enema X-ray, colonoscopy, ileoscopy, upper gastrointestinal endoscopy and small bowel X-ray.

*Result:* Chronic non-infective diarrhea was observed in 107 (51.7%) cases from 207 chronic diarrhea cases respectively. The frequently found abnormalities that had caused chronic non-infective diarrhea were carbohydrate maldigestion (62.61%), colorectal cancer (14.01%), Crohn's disease (11.21%), ulcerative colitis (9.34%), irritable bowel syndrome (8.41%), colorectal polyp (8.41%) etc.

*Conclusion:* The most frequent abnormality found in chronic non-infective diarrhea was maldigestion.

**Keywords:** Chronic diarrhea, non-infective.

### INTRODUCTION

Chronic diarrhea is common in Indonesia.<sup>1,2</sup> Chronic diarrhea patients usually could not do their normal living activity, could not work well and suffer from high cost medical expense.<sup>1-5</sup> A morbidity study in the North Jakarta area revealed that the number of patients with chronic diarrhea admitted to the local hospitals was approximately 1.0% of all patients with diarrhea.<sup>6</sup> The chronic non-infective diarrhea cases seem to be increasing recently.

The causes of chronic diarrhea vary widely. The causes of chronic non-infective diarrhea are

(1) disorders of the small or large intestines including inflammatory bowel disease, malignancy, irritable bowel syndrome and malabsorption; (2) disorders of the liver including chronic hepatitis and liver cirrhosis, disorder of the pancreas including chronic pancreatitis and pancreatic tumor; (3) metabolic-endocrine disorders including thyrotoxicosis, diabetes mellitus; (4) drugs including laxatives, alcohol and (5) hormone producing tumors (Vipoma, Zollinger-Ellison and others).<sup>3,4,7-19</sup>

The aim of this study is to reveal the pattern of diseases that can cause chronic non-infective diarrhea.

## METHODS AND MATERIALS

We examined patients with chronic non-infective diarrhea over a six-year period from 1995 until 2000. Our study subjects were in-hospitalized patients and outpatients of the Division of Gastroenterology, Dr. Cipto Mangunkusumo General National Hospital and other private hospitals in Jakarta. The patients were required to go through a physical and laboratory examinations. They also performed stool analysis, blood examination and liver-pancreatic function tests. Barium enema X-ray & colonoscopy, ileoscopy, upper GI endoscopy, small bowel X-ray and histopathology examinations were also performed. Chronic diarrhea was diagnosed if the passage of stool was more than 200 grams per day or if passage of soft and watery stool was more than 3 times per day with or without blood or mucous in the stool and it lasted more than 15 days.<sup>1,2,4,7,16,17,20</sup> Diarrhea was diagnosed as infective if infection was found to be the cause. The case would be diagnosed as non-infective diarrhea if infection had been ruled out as being the cause.<sup>10,11</sup> Carbohydrate maldigestion was considered if we found abundant amylum or undigested carbohydrate in the stool. Fat maldigestion was considered if abundant fat was found in the stool by qualitative examination with Sudan staining. Patients who did not agree to participate in the study and have infective or infectious causes were excluded. Inflammatory bowel disease (Crohn's disease or ulcerative colitis) was diagnosed according to the history of illness, physical examination, colonoscopy and histopathology result. Radiation colitis was also diagnosed according to the history of radiation therapy, physical examination, colonoscopy and histopathology result. Celiac disease or gluten enteropathy was diagnosed based on the history of illness, history of food intake contains of gluten, duodeno-jejunoscopy examination and histopathology result of villous atrophy of the intestine confined to Marsh criteria.

## RESULTS

During the study period we examined 107 (51.7%) chronic non-infective diarrhea cases from 207 chronic diarrhea patients. The majority of them were male (62.6%), mean of age 42.6 ± 14.8 years (table 1).

The diseases or findings found in chronic non-infective diarrhea could be seen in table 2

**Table 1. Characteristics of Patients**

Characteristics	Result
<b>Sex</b>	
Male	67 (62.6%)
Female	40 (37.4%)
<b>Mean of age (years)</b>	42.6 ± 14.8
<b>Length of diarrhea (weeks)</b>	
> 48	15 (14.0%)
> 24 – 48	19 (17.8%)
> 12 – 24	15 (14.0%)
> 4 – 12	33 (30.8%)
3 - 4	25 (23.4%)
<b>Nutritional status</b>	
Malnutrition	27 (25.2%)
Normal	80 (74.8%)

**Table 2. Diseases and Findings in Chronic Non-infective Diarrhea**

Diseases and Findings	Frequency (total=107)	Percent (%)
Crohn's disease	12	11.21
Ulcerative Colitis	10	9.34
Eosinophilic duodeno-jejuno-ileo-colitis	1	0.93
Lymphocytic colitis	1	0.93
Jejunal villous atrophy due to Celiac disease	3	2.80
Radiation colitis	5	4.67
NSAID Enteropathy	2	1.86
Hyperthyroidism/thyrotoxicosis	4	3.73
Prostigmin therapy	1	0.93
Food allergy	1	0.93
Amyloidosis	1	0.93
Irritable bowel syndrome(IBS)	9	8.41
Colo-rectal diverticulosis	6	5.60
Colo-rectal polyp	9	8.41
Submucosal colorectal tumor	1	0.93
Colorectal carcinoma/carcinoid	15	14.01
Lymphoma	3	2.80
Jejunal carcinoma	1	0.93
Carbohydrate maldigestion	67	62.61
Fat maldigestion	4	3.73
Carbohydrate-fat maldigestion	6	5.60
Portal hypertensive enteropathy	7	6.54
Lactose intolerance	5	4.67
Unknown	5	4.67

Note: one patient (case) may have one or more abnormalities

## DISCUSSION

There are various definitions of chronic diarrhea, but in this study we specifically defined it as a case of chronic diarrhea if it lasted more than 15 days. As noted above, in our study the largest group (30.8%) had suffered diarrhea between 4 and 12 weeks.

In this study we found malnutrition in 25.2% of chronic non-infective diarrhea patients, this may be as the complications of decreased food intake,

malabsorption-maldigestion, and increased catabolic process in the patient. Malnutrition is an important clinical problem in inflammatory bowel diseases, particularly in Crohn's disease. Most patients with Crohn's disease had lost weight by the time the diagnosis was confirmed. Malnutrition is also frequently found in colon cancer, especially in Indonesia where the majority of cancer patients usually come to hospital at advanced stage of disease already. The causes of chronic, non-infective diarrhea also vary. The frequent causes were carbohydrate maldigestion (62.61%), colorectal cancer (14.01%), Crohn's disease (11.21%), ulcerative colitis (9.34%) and irritable bowel syndrome (8.41%).

This study also showed that the incidence of Crohn's disease and ulcerative colitis were still low in Indonesia compared to Western countries, but seem to be increasing. The incidence of Crohn's disease is more frequent than the ulcerative colitis in this study. This finding is not the same with Northern Europe and North America where the incidence of ulcerative colitis is more frequent than Crohn's disease. In Northern Europe and North America the incidence of Crohn's disease is 1-6/100,000 and the incidence of ulcerative colitis is 2-10/100,000.<sup>21</sup> The incidence and prevalence of colorectal cancer is now increasing in Indonesia. It can cause chronic diarrhea and make the patient suffer more.<sup>12,19</sup>

The causes of food maldigestion (carbohydrate and fat) are infection and non-infection causes of the bowel.<sup>3,4,5,7,8</sup> In this chronic non-infective diarrhea, we often found carbohydrate maldigestion which is in line in other studies. Other causes were portal hypertensive naturopathy (6.54%), small bowel villous atrophy due to Celiac spree (2.80%), NSAID enteropathy (1.86%) and unknown etiology (4.67%).

We found 3 cases of Celiac disease (gluten enteropathy). This showed that although the Indonesian people have less risk to get gluten hypersensitivity, there is still a possibility to get the disease. The Indonesian people nowadays consume more food contains of gluten such as bread, noodle and biscuit. Thus, the lifestyle of Indonesian people have changed to the Western lifestyle.<sup>22,23</sup>

Non-steroidal anti inflammatory drugs can cause abnormalities in the stomach such as (NSAID gastropathy) and bowel (NSAID enteropathy). The mechanisms of these abnormalities is already established.<sup>24,25</sup>

There were many liver cirrhotic patients in Indonesia as the complication of viral hepatitis B and C. One of the complications of liver cirrhosis is portal hypertensive

enteropathy which can alter the motility of the bowel such as diarrhea or constipation and histopathology of the bowel.<sup>26,27</sup>

Many investigators reported that 10% of the patients with chronic diarrhea still have unknown etiology despite careful & complete examinations had been done.<sup>12</sup> In this study we have 4.67% chronic diarrhea patients with unknown etiology and this finding is consistent with the literature. It is possible that the chronic diarrhea in those patients caused by hormonal abnormalities or gut neuro-endocrine abnormalities. Unfortunately, this kind of disease could not be confirmed in Indonesia due to unavailable laboratory examination. Further in-depth studies have to be conducted to learn more about the unknown chronic diarrhea.<sup>8,9,12</sup>

In this study some patients have one or more abnormalities or diseases that have a role in causing chronic diarrhea. We suggest that a thorough and careful examination is always indicated in every chronic non-infective diarrhea patients, so we could confirm the final diagnosis in order to enable us to give the proper treatment.

## CONCLUSION

The most frequent abnormality found in chronic non-infective diarrhea was maldigestion.

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