

CHRONIC DIARRHEA IN SOLDIERS; FACTS

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ABSTRACT

Objective: To find out the underlying causes of chronic diarrhea in soldiers and how it differs from general population.

Study Design: Prospective comparative study.

Place and Duration of Study: Combined Military Hospital (CMH) Multan and Pak Emeritus Military Hospital (PEMH) Rawalpindi, from Dec 2017 to Jan 2020.

Methodology: All soldiers in active service, having diarrhea more than 4 weeks in study and non-soldiers of the same age were included in the control group. There were inquired in details about the diarrhea symptoms and investigations carried out accordingly to find out the underlying cause. The two groups were compared to find out any differences. The data were analyzed by SPSS version 22.

Results: Seventy one in study and 50 patients in control had their mean ages of 34.61 ± 8.35 and 32.42 ± 10.28 years. Mean duration of symptoms were 18 and 15 months in study and control groups respectively. Irritable Bowel Syndrome (IBS) was more common in both groups i.e. 14 (20%) and 20 (40%) in study and control groups respectively but frequency was more in second one. Seropositive celiac disease 13 (18.5%), seronegative villous atrophy 10 (14%) in study and Inflammatory Bowel Disease IBD 6 (12%) in control group were second most common conditions.

Conclusions: Irritable bowel syndrome is common in this age group. Celiac and seronegative villous atrophy is second common conditions in the study group.

Keywords: Chronic diarrhea in soldiers, Chronic diarrhea, Celiac disease, Irritable bowel syndrome (diarrhea).

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INTRODUCTION

Chronic diarrhea is defined by ≥ 3 stools/ day, or stools weight >200 gm and duration of ≥ 4 weeks. It affects 5% of the population at a given time^{1,2}. Chronic diarrhea is broadly divided into different groups according to its pathophysiology, a number of diseases fall into each group³. Motility disorders that can lead to diarrhea are IBS according to Rome IV criteria⁴, hyperthyroidism and diabetic autonomic neuropathy. Inflammatory bowel disease includes two major diseases i.e. ulcerative colitis and Crohn's disease. Ulcerative colitis is the inflammatory condition confined to colonic mucosa⁵. Crohn's disease is a transmural inflammation with skip lesion can affect any part of the gut from mouth to anus. Infectious diseases include pseudomembranous colitis, Tuberculosis etc. Secretory diarrhea may occur in laxative abuse, post cholecystectomy. Microscopic colitis presents with watery diarrhea usually affects the middle aged patients but can affect children as well. It is diagnosed on histopathology of distal colon. There are two further subtypes i.e. lymphocytic and collagenous colitis⁶. Malabsorption is impairment in absorption of nutrients caused by any

disruption in the process of normal absorption at luminal, brush border processing and absorption into the intestinal mucosa or transport into the circulation. Diseases involving the mucosal brush border are celiac disease, giardiasis, tropical sprue⁷. A number of studies have done on the spectrum of the diseases related to chronic diarrhea in the general population⁸, and acute diarrhea in the army personals⁹, but yet to see any study that has focused on this important topic. As chronic diarrhea can lead severe morbidity and badly affect the working capability of the soldier, this study was designed to find the different etiological factors and how they differ from the general population of the same age group.

METHODOLOGY

This was prospective comparative study. It was carried out at CMH Multan and PEMH from Dec 2017 to Jan 2020. This was approved by the ethics committee of the hospitals, certificate no A/28/EC/116/20. Consecutive convenient sampling was done. All patients presented with 4 weeks history of diarrhea during this duration were included in the study. Patients unwilling to participate, further investigations or lost to follow up were excluded from the study. The patients' informed consent was taken from both the groups. They were asked about duration of the symptoms,

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history of traveling, use of antibiotics or intestinal malignancy in the family. They were inquired in details about symptoms like consistency, colour of stool, any mucous or blood in it. They were further asked about nocturnal symptoms, weight loss or heat intolerance etc. Investigations were done according to possible diagnosis based on the history like blood counts, stool examination, renal, liver functions, thyroid profile, anti-tissue transglutaminase (anti-TTG anti-bodies) IgG A and IgG type. Upper GI endoscopy with duodenal biopsies, colonoscopy with mucosal biopsies and contrast enhanced CT scan of abdomen where ever indicated were also done.

The data were analyzed by SPSS-22. The descriptive statistical methods were used for mean \pm standard deviation and percentage. The chi-square test was used in the comparison of qualitative data. p -value ≤ 0.5 was considered statistically significant.

RESULTS

Out of 121 there were 71 patients in study and 50 patients in the control group. Mean age of the two groups were 34.62 ± 8.35 and 32.42 ± 10.28 years without statistically significant difference, p (0.693). Average duration of symptoms in study and control groups was 18 and 15 months respectively. History of smoking, travel, bowel malignancy in family, bleed per rectum, nocturnal symptoms and weight loss were more common in study group (table-I).

IBS was common in both groups but with more frequency in control group. Celiac disease along with its associated problems like microscopic colitis, intestinal malignancy, hypothyroidism and hyperthyroidism, bowel malignancy, microscopic colitis and megaloblastic anemia were second more common conditions in study group as compared to control group in which IBD dominates. However there was no statistically significant difference in the two groups ($p=0.923$).

DISCUSSION

Chronic diarrhea has a spectrum of diseases with different age prevalence in each disease. Diarrhea is less common in patients with age more than 60¹⁰. The mean age in our study group was 34 years that was almost the same as control group i.e. 32 years. IBS is considered to be common in this age group because of etiological association with the chronic diarrhea like stress¹¹, and post infections^{12,13}. In our study IBS was common in both groups i.e. 20% and 40% study and control groups respectively, though frequency was more common in secondone. Pooled global prevalence

Table-I: Demographic/clinical differential features of the study and control group.

	Study group n=71	Control group n=50
Mean age \pm SD	34.61 \pm 8.35 yrs	32.42 \pm 10.28
Symptoms		
Mean duration	18 months	15 months
Smoker		
Yes	19 (27%)	05 (10%)
No	52 (73%)	45 (90%)
Travel history		
Yes	23 (32%)	02 (4%)
No	48 (68%)	48 (96%)
Family history of bowel malignancy		
Yes	3 (4%)	-
No	68 (96%)	50 (100%)
Blood in stool		
Yes	16 (23%)	7 (14%)
No	55 (77%)	43 (86%)
Nocturnal diarrhea		
Yes	37 (52%)	18 (36%)
No	34 (48%)	38 (64%)
Weight loss		
Yes	35 (49%)	9 (18%)
No	36 (51%)	41 (82%)
Rash		
Yes	15 (21%)	4 (8%)
No	55 (79%)	44 (92%)

Table-II: Frequency of different diseases in both groups with their percentage.

Diagnosis	Study group, n(%)=71	Control group, n(%)=50
Abdominal Tuberculosis	2 (2.8)	-
Antibiotic associated diarrhea	2 (2.8)	1 (1.4)
Celiac (sero-pos+ villous atrophy)	10 (14.1)	6 (8.5)
Celiac and microscopic colitis	1 (1.4)	-
Celiac with intestinal malignancy	1 (1.4)	-
Celiac+ Hypothyroidism	1 (1.4)	-
Diabetic autonomic neuropathy	1 (1.4)	-
H Pylori associated Diarrhea	1 (1.4)	2 (4)
Hyperthyroidism	2 (2.8)	3 (6)
Irritable bowel syndrome (diarrhea)	14 (19.4)	20 (40)
Megaloblastic associated diarrhea	1 (1.4)	-
Microscopic colitis	8 (11.3)	7 (14)
Post colectomy diarrhea	2 (2.8)	1 (2)
Seronegative villous atrophy	7 (9.9)	2 (4)
Seronegative villous atrophy and Megaloblastic anemia	3 (4.2)	-
Travelers diarrhea	6 (8.5)	-
Ulcerative colitis	9 (12.7)	6 (12)
Giardia/tinea saginata	-	2 (4)
Total	71 (100)	50 (100)

Table-III: Chi-square tests.

	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	179.706*	208	0.923
Likelihood Ratio	103.896	208	1.000
N of Valid Cases	71	-	-

*238 cells (100.0%) have expected count >5. The minimum expected count is 0.01.

of celiac is 0.7% and in Asia 0.6%. It is more common in children as compared to adults and in females in contrast to males¹⁴. Seropositive and sero-negative intestinal villous atrophy along with other autoimmune disease like hypothyroidism, GI malignancy and microscopic colitis was more common in study group. This is a matter of serious concern that every soldier presenting with diarrhea >4 weeks should be thoroughly investigated and celiac disease must be ruled out to avoid disability, complications and dietary modifications can be advised accordingly. In case of seronegative small intestinal villous atrophy conditions like infections, inflammations, immune mediated disorders and drugs should be considered¹⁵. HLA DQ2 and DQ8 used to confirm the celiac in sero-negative villous atrophy, negative results rule out celiac but it is not positive in all cases of villous atrophy that necessitate to rule out other causes¹⁶. Apart from war injuries travelers' diarrhea always remained a military problem because of the frequent soldiers' traveling¹⁷. Thirty two percent of the subjects in the study group had frequent history of traveling and 8.5% out of them had chronic diarrhea and no one in the control group. Out of inflammatory Bowel Disease, crude incidence of ulcerative colitis in India was 6.02% and prevalence exceed beyond 0.3% in North America and Europe¹⁸. Prevalence of ulcerative colitis in both study and control groups was 12.7 and 12% respectively, that is quite high. There was no case of Crohn's disease in both groups. Other causes of diarrhea with less frequency in both groups were secondary to *H.Pylori*, antibiotic use, post colectomy, diabetes with autonomic neuropathy and secondary to giardiasis were present without much difference.

LIMITATION OF STUDY

Limited number of ladies was there in the study group so the statistics may not be true representation in this gender group

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CONCLUSION

IBS was more common in both groups though frequency was more in control group. Seropositive CD, seronegative villous atrophy in study and IBD in control group were second commonest conditions in this study. However there was no statistically significant difference in the two groups ($p=0.923$). Etiological differences is a food for thought to do more studies on this topic.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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