Diarrhea associated to parasites at Peltier Hospital in Djibouti (Period from 2019 to 2021)

Fatouma MOHAMED ABDOUL-LATIF1*, Houda MOHAMED ABDOUL-LATIF2, Ali MERITO1, Amina MOHAMED ALI1, Tarik AINANE3

1Medicinal Research Institute, Centre d’Etudes et de Recherche de Djibouti, IRM-CERD, Route de l’Aéroport, Haramous B.P. 486, Djibouti City, Djibouti.
2Djibouti Peltier Hospital, BP 2123, Djibouti
3Superior School of Technology of Khenifra, University of Sultan Moulay Slimane, BP 170, Khenifra 54000, Morocco.

ARTICLE INFO
Received June 25th, 2022
Received in revised form September 30th, 2022
Accepted October 1st, 2022

ABSTRACT
Diarrhea may be present alone or be associated with other symptoms, such as nausea, vomiting, abdominal pain or weight loss. Diarrhea diseases represent a true public health that needs to be considered. On the other hand, Diarrhea was a very prevalent symptom of COVID-19 and other infections. This study objects to find different parasitic diarrhea. A total of 850 patients were surveyed, of whom 380 were men and 470 were women (sex ratio 0.80), with an average age of 33.5 years [15-80 years]. Acute diarrhea was reported in 55 % of patients, choleriform in 24 % of patients, and dysenteric in 21 % of patients. Among 850 stool samples, 181 were negative (21 %). A review of the stool revealed altered leukocytes in 374 samples (44 %). The most common parasites reported were Entamoeba histolytica, Trichomonas intestinalis and Giardia intestinalis representing 85 % of cases. Diseases most commonly associated with diarrhea include malaria (27 %), Covid-19 (15 %), acute lung disease (13 %) and genitourinary infections (9 %). Parasitic diarrhea dominated by helminthiasis remains a concern.

© 2022 EST-Khenifra, University of Sultan Moulay Slimane. All rights reserved.

1. Introduction:
Diarrhea diseases represent a real public health problem throughout the world [1]. Etiologies are diverse but dominated developing countries by infectious pathology [2-4]. Diarrhea was a very common symptom of COVID-19 and others infections [5-9]. The major cause of diarrhea is related to water, milk and food [10]. Environmental conditions and cultural habits have a considerable influence on these diarrhea diseases in Africa. In tropical areas, almost all children are carriers of digestive parasites, but these are the cause of only about 5 % of acute diarrhea and some chronic diarrhea, if they are in good nutritional condition [11-12]. Protozoa (Entamoeba histolytica, Giardia lamblia and Cryptosporidium sp) cause acute diarrhea much more frequently and it is important to look for them carefully [13-14]. Giardia and Cryptosporidia participate in the destruction of enterocytes, but these lesions, which could lead to diarrhea by malabsorption, do not fully explain the acute watery diarrhea observed. The serologies have little diagnostic interest, compared to the direct demonstration of the parasite, the only examination of certainty. Antibodies produced locally or present in the general circulation do not prevent the persistence of the infection or successive reinfections. Immunity deficits, congenital or acquired, generalized or limited to certain digestive structures, will considerably favor the symptomatic nature of parasitic infections [15]. These diseases are important to know because they require an urgent and coherent therapeutic attitude. The most frequent and the most dramatic is malnutrition, the most frequent cause of immune deficiencies in developing countries.

(*) Corresponding author:
Tel.: + 253 77032781
E-mail address: fatouma_abdoulatif@yahoo.fr
The parasitic diarrhea of the malnourished, in particular due to *Giardia*, can be severe and prolonged, and considerably interfere with renutrition [16]. The second situation is the use of immunosuppressants, mainly corticosteroids, which can lead to sudden and extremely serious parasitic diarrhea. Diarrhea is a frequent symptom of malaria in young children. The purpose of this work was to improve the management of diarrhea diseases.

2. Materials and methods:
Our work was carried out in the Polyvalent Medicine Department at Peltier Hospital. The study focused on patients with diarrhea, from 2019 to 2021. The patients included had to be at least 15 years old, and need to have a complete medical file. This is a retrospective survey. Diarrhea was classified as stage A, B, C according to WHO recommendations. The parasitological examination of the stools performed in all patients consisted of a direct examination of the stools in the fresh state.

3. Results and discussion:
850 patients were identified in which 380 patients were men and 470 patients were women (sex ratio 0.80), with an average age of 33.5 years [15-80 years]. For men, the mean age was 35.5 years and for women 30 years, but the difference was not significant (P = 0.080). Their socio-economic level was low.

We have noted an acute diarrhea in 55 % of patients, choleriform in 24 % of patients and dysenteric in 21 % of patients. Other functional signs included vomiting and abdominal pain.

From the 850 stool samples, 181 were negative (21 %). Fresh stool examination showed the presence of altered leukocytes in 374 samples (44 %). The main parasites isolated have been reported in Table I.

<table>
<thead>
<tr>
<th>Parasites</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entamoeba histolytica</td>
<td>324</td>
<td>38</td>
</tr>
<tr>
<td>Trichomonas intestinalis</td>
<td>267</td>
<td>31</td>
</tr>
<tr>
<td>Giardia intestinalis</td>
<td>138</td>
<td>16</td>
</tr>
<tr>
<td>Entamoeba coli</td>
<td>83</td>
<td>10</td>
</tr>
<tr>
<td>Ascaris lumbricoides</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>850</td>
<td>100</td>
</tr>
</tbody>
</table>

Stool examination revealed 5 pathogenic parasitic species that are dominated by *Entamoeba histolytica*, *Trichomonas intestinalis* and *Giardia intestinalis* representing 85 % of cases (Table I). The pathologies most frequently associated with diarrhea have been malaria (27 %), Covid-19 (15 %), acute pneumopathies (13 %) and genitourinary infections (9 %). Accordingly, two types of antibiotics were administered to our patients, pefloxacin and cotrimoxazole. The average duration of antibiotic treatment for acute diarrhea was 7 days, regardless of the molecule and the type of diarrhea. For chronic diarrhea, the average duration was 7 days for pefloxacin and 15 days for cotrimoxazole. Thus, the only amebicide administered was metronidazole. The hospital stay was 6 days on average. Consequently, out of 850 patients, 782 patients (92 %) evolved favorably and 68 deaths (8 %) were noted.

The ecological conditions favorable to the outbreak of tropical parasites are met in Djibouti. It is a permanently hot and humid climate. Some areas are deprived of water supply and pipes conducive to the evacuation of waste water. The presence of altered leukocytes could direct us towards an amoebic etiology or an amoeba-bacillary association in case of associated fever [15-16].

Oral or intravenous rehydration was applied urgently in most of our patients because a simple delay can cause death. The prescription of antibiotics such as pefloxacin and cotrimoxazole is related to the suspicion of a bacterial pathology such as the amoeba-bacillary association in dysenteric syndromes or cholera in choleriform syndromes when no parasite had been found. Empirical treatment with metronidazole is based on the possibility of intestinal amebiasis. Some medicinal plants can be used [17-22].

4. Conclusion:
Parasitic diarrhea dominated by helminthiasis remains a concern. They are linked to poor hygiene conditions, insufficient health education and a consequence of a low socio-economic level. The fight against fecal peril appears to be the necessary step to improve the care of these patients, as well as the increase in medical staff and the strengthening of laboratory equipment. Diarrhea disease control should also be concern to health authorities.
References:


