INCIDENCE OF FOOD POISONING AND INFECTIOUS ENTEROCOLITIS IN BIHOR COUNTY 2009

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Abstract
During the period 1/01/2009-31/12/2009 a number of 432 persons were hospitalised into the Clinic of Infectious Diseases Oradea with the diagnosis of acute enterocolitis or food poisoning. The majority of the cases were men (243 cases – 57%); women were represented by 184 cases (43%). The middle aged persons predominated, followed by elder persons and the patients from rural. In Bihor County, where exist many individual farms, the sanitary and veterinary prophylactic measures are difficult, possibly also due to the poor economic level of the region. The majority of cases represented non-bloody diarrhea. The diagnosis of food poisoning was put in 67 cases (15.5%). Particularly bacteria were identified: Salmonella in 76 cases (40%), Shigella in 47 cases (25%), and Staphylococcus in 28 cases (15%). The immuno-suppression of the patients contributed to the severity of the disease, especially concerning the toxic state and the presence of dehydration.

Key words*: food poisoning, diarrhea, Salmonella, dehydration.* acute enterocolitis, food poisoning, prophylactic sanitary-veterinary measures

INTRODUCTION
BACKGROUND

Diarrheal illnesses in humans continue to take a great toll of lives, with a disproportionately high mortality in infants and young children in developing countries. Bacteriologic and parasitologic advances made during the past century led to the discovery of the etiology of some of the diarrheal illnesses, but the etiology of the major portion remained unknown. Although descriptions of infectious diarrhea exist in the earliest records of civilization, effective measures for prevention were not widely or consistently used until the modern era of active public health promotion. Advances in the understanding of etiology and therapies have revolutionized prognosis; however, constant vigilance against lapses in public health is necessary to prevent outbreaks of disease. Studies performed until present in Romania reveal an increasing occurrence of infectious enterocolitis.

OBJECTIVES

The objectives of our study are:

1. Establishing the incidence of acute enterocolitis and food poisonings encountered in the categories of age, sex, various rural or urban areas, and make a data correlation between them.
2. Evaluation of the epidemiological content.
3. Differential diagnosis of the diseases.
4. Classification of the clinical forms of disease and their correlation

with the etiology.

MATERIAL AND METHODS

We have studied the medical case files of the patients hospitalized with the diagnosis of acute enterocolitis or food poisoning in the Clinic of Infectious Diseases Oradea, during the period 1/01/2009-31/12/2009. The main clinical syndromes from the period of onset have been emphasized. The clinical forms of the disease were classified. The pathological functional parameters for each organ and system were taken into consideration. Complications (from simple affectation of an organ, to organ insufficiency) have been noted. Clinical picture has been correlated with the etiology of infections.

RESULTS AND DISCUSSIONS

The number of human infective enterocolitis cases admitted in the Clinic of Infectious Diseases Oradea during the studied year was 432. Reported to the population of Bihor County the incidence of the hospitalized patients was 0.72 $\%_{000}$ of inhabitants.

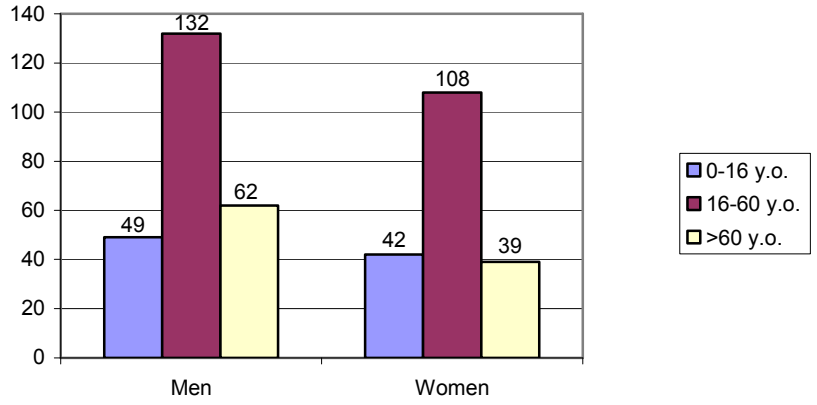

Fig 1

The majority of cases were men (*Fig.1*).

- Men 243 cases (57%)
- Women 184 cases (43%)

The middle aged persons predominated, followed by elder persons.

- 0-16 years 91 cases (21%)
- -16-60 years 240 cases (56%)
- - >60 years 101 cases (23%)

The patients from rural predominated:

-rural 247 cases (67.25%)
-urban 185 cases (32.75%).

An increased number of infections in male adults of active age, from the rural environment, are observed. This is justified by their increased and prolonged exposure to the etiologic agent. In Bihor County, where exist

many individual farms, the sanitary-veterinary prophylactic measures are more difficult, possibly also due to the poor economic level of the region.

Diarrhea can often be categorized into distinct clinical syndromes, based on content of the stool. Diagnostic strategies can be tailored to the clinical situation. Diarrhea needs to be distinguished from four other conditions. Although these conditions may accompany diarrhea, they often have different causes and different treatments than diarrhea. Our study revealed the following groups of patients (*Fig.2*):

- Acute non-bloody diarrhea 266 cases (61.57%)
- Acute bloody diarrhea 43 cases (9.95%)
- Chronic bloody diarrhea 8 cases (1.85%)
- Chronic non-bloody diarrhea 19 cases (4.39%)
- Diarrhea caused by toxins (food poisonings) 67 cases (15.5%)
- Recent traveler diarrhea 5 cases (1.15%)
- Diarrhea in the immuno-compromised persons 24 cases (5.55%)

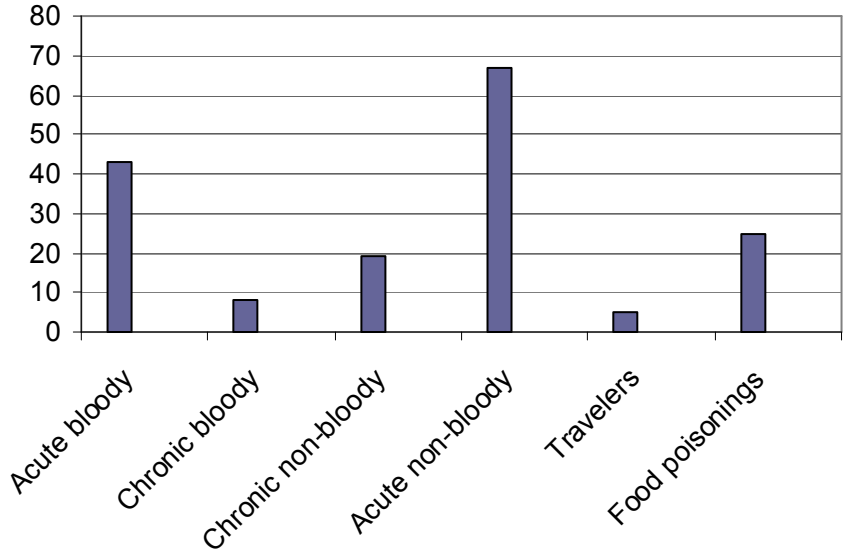

Fig. 2

Bloody acute diarrhea is unequivocally a medical emergency, but is not always infectious. In the appropriate clinical context, additional diagnostic considerations include intussusceptions, ischemic colitis, and inflammatory bowel disease. However, sometimes these conditions can be complicated by enteric infections, as we demonstrate in our study.

The likelihood of recovering a pathogen from stool cultures is low if patients have non-bloody diarrhea, especially if they have no abdominal pain or tenderness, have not had recent travel to areas where bacterial diarrhea is common, are not febrile, or have not had multiple stools in the 24 h preceding presentation. We tried to emphasize the etiological agents of the patients with acute diarrhea, and we obtained the following data.

The etiology was found in 198 cases (46%). Etiology was undetermined in >50% cases, (234 patients-54%).

It is difficult to put the diagnosis of viral diarrhea, there are necessary ELISA tests or methods to cultivate the viruses, not available in our study. Analyzing the clinical signs and the general lab investigations, we presumed a large part of the unidentified etiology diarrhea as being viral (54% of cases).

The following bacteria were identified:

- *Salmonella* 76 cases 40%
- *Shigella* 47 cases 25%
- *Staphylococcus* 28 cases 15%
- *Klebsiella* 19 cases 10%
- *Others* 18 cases 10%

The diagnosis of food poisoning was put in 67 cases (15.5%), consisting in members of the same family or collectivity who consumed the same infected aliment. The rest of 365 patients (84.5%) were isolated cases of acute infectious enterocolitis, without any connection between them.

Often the food poisonings are caused by *Salmonella* infection. We identified *Salmonella* infection in a large part of the cases (48.52%). Food usually becomes contaminated from poor sanitation or preparation. Food handlers who do not wash their hands after using the bathroom or have infections themselves often cause contamination. Improperly packaged food stored at the wrong temperature also promotes contamination. Many cases of food poisoning are not reported because people suffer mild symptoms and recover quickly. As only about 3 percent of *Salmonella* cases are officially reported nationwide, and many milder cases are never diagnosed, the true incidence is undoubtedly much higher.

The clinical signs of onset were as follows (*Table 1*):

Unspecific infectious syndrome	100%
Diarrhea	87%
Vomiting	70%
Dehydration	53%
Renal involvement	28%
Associated pathology	13%
Cutaneous eruptions or allergies	3%

A higher percentage of forms with aggressive onset and a relatively lower percentage of forms with mild onset are observed.

The clinical forms of the disease have been grouped according to the gravity of the illness. The severity was appreciated by the toxic state, degree of dehydration, prolonged evolution and presence of complications.

None fatal case was reported.

- Light forms 107 cases 25%
- Medium forms 229 cases 53%
- Severe forms 96 cases 22%

The immuno-suppression of the patients (alcoholics, elderly, diabetic or with other associated chronic diseases) contributed to the severity of the disease, especially concerning the toxic state and the presence of dehydration.

CONCLUSIONS

1. The number of infectious enterocolitis cases admitted in the Clinic of Infectious Diseases Oradea during the 01.01. 2009 - 31.12.2009 period was 432. The majority of cases were men (243 cases – 57%); 184 cases were women (43%).
2. The middle aged persons predominated, followed by elder persons and the patients from rural. An increased incidence of infection in summer months is observed.
3. The etiology was found in 198 cases (46%). Etiology was undetermined in >50% cases, represented by 234 patients (54%), a large part of the unidentified etiology diarrhea as being viral (54% of cases).
4. Particularly bacteria were identified: Salmonella in 76 cases (40%), Shigella in 47 cases (25%), and Staphylococcus in 28 cases (15%).
5. Light forms were founded in 107 cases (25%), medium forms in 229 cases (53%) and severe forms in 96 cases (22%). The majority of cases represented non-bloody diarrhea.
6. The diagnosis of food poisoning was put in 67 cases (15.5%). We identified *Salmonella* infection in a large part of these cases (48.52%).
7. The immuno-suppression of the patients contributed to the severity of the disease, especially concerning the toxic state and the presence of dehydration.

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