

CLINICAL ASPECTS OF FOODBORN DISEASES IN BIHOR COUNTY

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Abstract

Foodborne diseases can appear as isolated sporadic cases or, less frequently, as an outbreak of illnesses affecting a group of people after a common food exposure. The number of foodborn diseases cases admitted in the Clinic of Infectious Diseases Oradea during the studied year (2010) was 432. The majority of cases were men. The middle aged persons predominated, followed by elder persons. The patients from rural predominated. Between the 432 cases with acute diarrhea, 65 cases (15%) were considered foodborn diseases or food poisonings, 8 cases (2%) were diagnosed with botulism, and 12 cases (3%) were interpreted as traveler's diarrhea, being tourists in our county. The rest of 347 cases (80%) were interpreted as acute enterocolitis.

The main etiology of foodborn diseases was identified: Salmonella - 15 cases (32%), Staphylococcus - 12 cases (24%), and Clostridium botulinum - 12 cases (24%). The antibiotics used in the treatment were predominantly beta-lactamines and quinolones.

Key words: botulism, acute enterocolitis, Salmonella, beta-lactamines, quinolones

INTRODUCTION

Foodborne diseases can appear as isolated sporadic cases or, less frequently, as an outbreak of illnesses affecting a group of people after a common food exposure. The diagnosis of foodborne disease should be considered when an acute illness with gastrointestinal or neurologic manifestations affects two or more persons who have shared a meal during the previous week. Important clues to the etiologic agent are provided by both the symptoms and the incubation period.

MATERIAL AND METHODS

We have studied the medical case files of patients hospitalized with the diagnosis of acute enterocolitis or food poisoning in The Clinic of Infectious Diseases Oradea, during the period 1/01/2010 and 31/12/2010.

The main clinical syndromes from the onset of infection 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.

The following studies have been carried out:

- Fecal leukocyte determination
- Stool culture for enteric pathogens
- Stool examination for ova and parasites

RESULTS AND DISCUSSIONS

The medical files of the patients revealed the following data. The number of food poisonings and infective enterocolitis cases admitted in the Clinic of Infectious Diseases during the studied year (2010) was 432. The majority of cases were men.

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

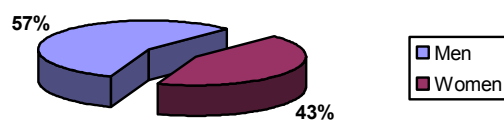


Fig 1 – Grouping of Patients by Gender

The middle aged persons predominated, followed by elder persons.

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

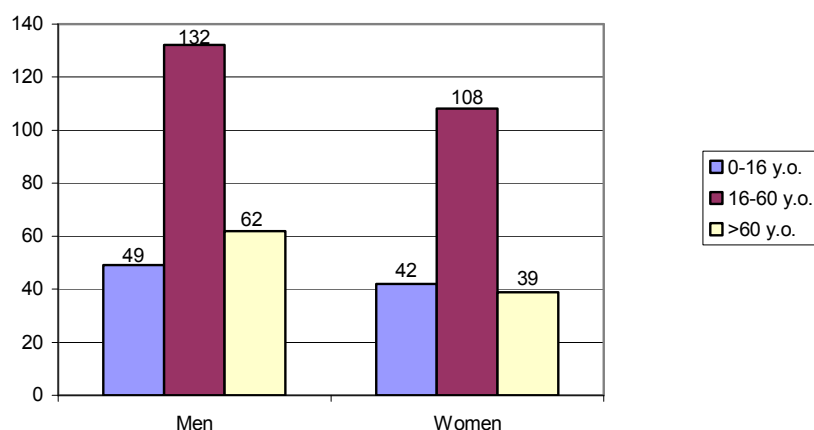


Fig 2 – Grouping of Patients by Gender and Age

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.

There is an increased incidence of infection in Bihor County, where many individual farms exist and sanitary-veterinary prophylactic measures are more difficult, possibly also due to the poor economic level of the region.

The patients from rural predominated:

- Rural 247 cases (67.25%)
- Urban 185 cases (32.75%)

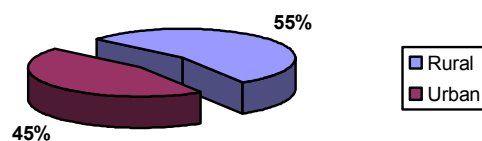


Fig 3 – Grouping of Patients by the Environment

From the 432 cases with acute diarrhea, 65 cases (15%) were considered foodborn diseases or food poisonings, 8 cases (2%) were

diagnosed with botulism, and 12 cases (3%) were interpreted as traveler's diarrhea, being tourists in our county. The rest of 347 cases (80%) were interpreted as acute enterocolitis.

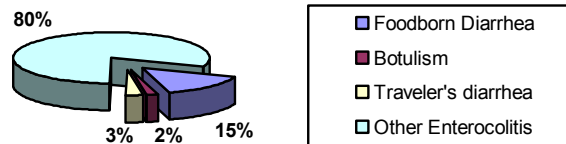


Fig 4 – Rate of Foodborn Disease and Traveler's Diarrhea

The etiology of acute diarrhea was found in 198 cases (46%). Etiology was undetermined in >50% cases, 234 patients (54%). It is possible that a large part of acute enterocolitis has a viral etiology, that could not be put in evidence with the laboratory tests.

In the cases 85 patients with foodborn disease and traveler's diarrhea the etiology was found in 49 (56%) cases, the rest of 38 (44%) cases had an unidentified etiology. The percent of unidentified etiology cases is higher in foodborn diseases than in other enterocolitis because the etiological tests can be performed not only from the stools or the patient's blood, but also from the contaminated food.

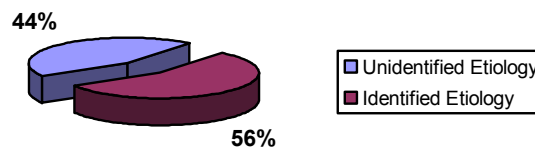


Fig 5 – Etiology in Foodborn Diseases

There were also difficulties in diagnosing of foodborn diseases, so, the clinical signs were taken in consideration.

The following etiology of foodborn disease was identified:

- <i>Salmonella</i>	15 cases	32%
- <i>Staphylococcus</i>	12 cases	24%
- <i>Clostridium botulinum</i>	12 cases	24%
- <i>Giardia lamblia</i>	5 cases	10%
- <i>Shigella</i>	3 cases	6%
- <i>Klebsiella</i>	2 cases	4%.

Toxins and food poisoning can cause diarrhea. These include staphylococcal toxin (often from milk products due to an infected wound in workers), and *Bacillus cereus*. Some patients of our study were confirmed with staphylococcal foodborn diarrhea.

The clinical forms of onset in foodborn diarrhea were as follows:

Symptoms in Unset of Foodborn Diseases		Table 1
Unspecific infectious syndrome	100%	
Diarrhea	87%	
Vomitings	70%	
Dehydration	53%	
Renal involvement	28%	
Associated pathology	13%	
Cutaneous eruptions or allergies	3%	

The first priority in treatment of acute diarrhea was insuring that patients are adequately rehydrated, as significant amounts of fluid may be lost. This fluid loss is the primary mechanism of mortality from acute diarrhea in patients.

Perfusive treatment was used for dehydration, caloric and vitaminic supply, but also for hydroelectric balancing and as a support for antibiotic therapy. Vitamin C, potassium, calcium, glucoses solutions (5%, 10%, and 20%), Ringers solution and NaHC03 solutions were used.

The antibiotherapy was started by clinical decisions, in the following period it was administrated by consulting the antibiogram.

Table 2

	Antibiotherapy	
Betalactamines	29 cases	33%
Quinolones	21 cases	25%
Cephalosporines	13 cases	15%
Cotrimoxazol	9 cases	11%
Cyclines	5 cases	6%
Aminoglycosides	4 cases	5%
Others	4 cases	5%
Total	85 cases	100%

In the past 20 years, the matter of utility of some or other antibiotics in bacterial diarrhea has been raised. Treatment schemes are highly controversial with respect to tissular penetration of antibiotics, penetration in the inflamed tissues, adverse effects, and prevention of complications.

CONCLUSIONS

1. The number of food poisonings and infective enterocolitis cases admitted in the Clinic of Infectious Diseases during the studied year (2010) was 432. The majority of cases were men.- 243 cases (57%), women were 184 cases (43%).
2. The middle aged persons predominated, followed by elder persons: under 16 years - 91 cases (21%), 16-60 years - 240 cases (56%), and over 60 years 101 cases (23%).
3. The patients from rural predominated: rural - 247 cases (67.25%), and urban 185 cases (32.75%).
4. From the 432 cases with acute diarrhea, 65 cases (15%) were considered foodborn diseases or food poisonings, 8 cases (2%) were diagnosed with botulism, and 12 cases (3%) were interpreted as traveler's diarrhea, being tourists in our county. The rest of 347 cases (80%) were interpreted as acute enterocolitis.
5. In the cases 85 patients with foodborn disease the etiology was found in 49 (56%) cases, the rest of 38 (44%) cases had an unidentified etiology.

6. The following etiology of foodborne disease was identified: *Salmonella* - 15 cases (32%), *Clostridium botulinum* - 12 cases (24%), *Staphylococcus* - 12 cases (24%), *Giardia lamblia* - 5 cases (10%), *Shigella* - 3 cases (6%), and *Klebsiella* - 2 cases (4%).
7. Digestive tolerance was good to mild, and some medium forms, which allowed PO alimentation - 63 cases (78%). The severe form of disease hindered the alimentation in the first days of evolution to only 22 cases (28%).
8. Perfusive treatment was instituted to 79 patients (93%) for a period ranging from a few days to a week.
9. The most utilized antibiotics are penicillins or other beta-lactamines, the 3rd generation of cephalosporines, quinolones, cotrimoxazol, cyclines, and sometimes aminoglycosides.

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