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CONSIDERATIONS ON FOOD POISONING IN CHILDREN

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Abstract

Introduction. *Food poisoning is an acute disease that occurs sporadically or epidemically as a result of the ingestion of food contaminated by a variety of bacteria or toxins. The purpose of the study was to analyse food poisoning in children from etiological, demographic, clinical and evolutionary point of view.*

Material and method. *We performed a retrospective study on food poisoning diagnosed children 0-18 years old from Bihor county during 5 years: 2013-2017. The medical documentation of the patients has been thoroughly studied epidemiologically, clinically and paraclinically.*

Results. *During the reference period the most frequent were the infections with Salmonella. There were detected 246 Salmonellosis, 131 from urban and 115 from rural environment. The distribution on age revealed: 0-1 year 52 cases, 1-4 years 94 patients, 5-9 42 subjects, 10-14 28 cases, 15-18 30 situations. The years distribution was relatively uniform. Food poisoning with other bacterial etiology were 77, 43 from urban and 34 from rural. Distribution on age was: 0-1 year 2 cases, 1-4 years 15 patients, 5-9 30 subjects, 10-14 14 cases, 15-18 16 patients. It was detected a peak of incidents in 2013. The most common symptoms were vomitings in 90% of patients, diarrhea in 72% of situations, fever 60% of cases, neurological symptoms in 30% of children. Most frequent the clinical manifestations were mild and moderate, only in 5 cases were severe. The evolution was favourable in all the situations.*

Conclusions. *Food poisoning is an important public health problem, in children the potential of severity is increased due to age particularities.*

Key words: food poisoning, children

INTRODUCTION

Food poisoning, also called foodborne illnesses, are acute diseases that occur sporadically or epidemically, as a result of the ingestion of an intense contamination by a variety of bacteria or/and their toxins, clinically characterised by a gastroenterocolitis symptomatology with sudden onset and general toxic manifestations. The term refers to both the toxic and infectious component being concomitantly present in varying proportions within these diseases. Different types of Salmonella are involved in 30-60%, Salmonella typhi murium is most frequent isolated (61,5-70%) followed by S. paratyphi, S. cholerae suis, S. enteritidis and S. panama. Enterotoxic staphylococci are representing 20-30% from the food poisoning etiologies. Shigella, Proteus, Coli, causes food poisoning only in case of massive food contamination. Particular clinical aspects present Clostridium botulinum, Vibrio parahaemolyticus, Clorstridium perfringens, Bacillus cereus. The purpose of the study was to analyse the food poisoning in pediatric particular on etiological, demographic, clinical and evolutionary aspects.

MATERIAL AND METHOD

We performed a retrospective study including the children 10-18 years old from Bihor county diagnosed with food poisoning and treated in Municipal Clinical Hospital from Oradea and territorial hospitals during 5 years: 2013-2017. The medical documentation of the patients has been thoroughly studied. The epidemiological, clinical, demographic and evolutionary aspects have been synthesized after analysing the detailed anamnesis, rigorous clinical findings, laboratory investigations including bacteriological examinations from the patients and from the incriminated food.

RESULTS AND DISCUSSION

During the interval between 1 Jan. 2013 – 31 Dec. 2017 were diagnosed with food poisoning and treated 323 children 0-18 years old in Bihor county. The most frequent were infections with Salmonella: 246 cases (76%) and 77 were bacterial food poisoning with other etiology. From the Salmonellosis, 131 (53%) were from urban environment and 115 (47%) from rural (Fig. 1). Distribution on the age reveals an increased incidence in small ages, especially in the first 4 years. There were noticed 52 cases 0-1 year, 94 patients 1-4 years old, 42 subjects 5-9 years old, 28 cases 10-14 years old, 30 cases 15-18 years old (Fig. 2). The increased incidence in small ages is in accord with the literature. The years distribution within the reference period was relatively uniform: 56 cases in 2013, 45 in 2014, 37 situations in 2015, 50 cases in 2016, 58 in 2017.

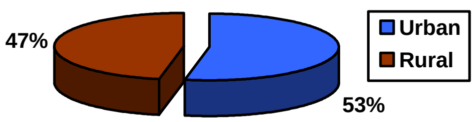

Fig. 1. Distribution on environment in Salmonella infections

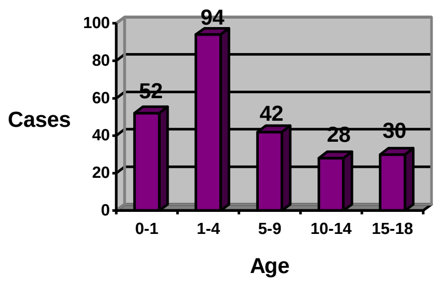

Fig. 2. Distribution on age in Salmonella infections

Diagnosed food poisoning with other bacterial etiology were 77 (24%). From these 43 (56%) were from urban areas and 34 (44%) from rural environment (Fig. 3). Distribution on age reveals 2 cases 0-1 year old, 15 patients 1-4 years old, 30 subjects 5-9 years old, 14 situations 10-14 years old, 16 cases 15-18 years old. It is an increased incidence in children older than 5 years (Fig. 4).

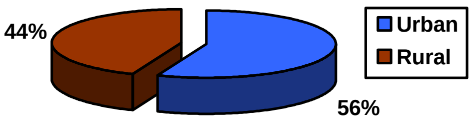

Fig. 3. Distribution on environment in other bacterial infections

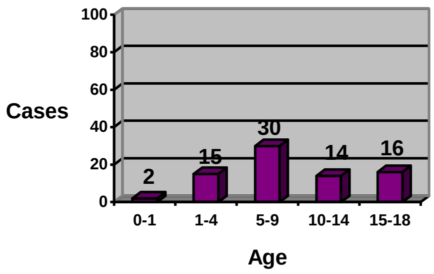

Fig. 4. Distribution on age in other bacterial infections

Depending on etiology enterotoxic Staphylococcus had been detected at 4 patients, 1 case in 5-9 years old and 3 in 15-19 years old. Botulism had been diagnosed in 4 situations, 2 children 10-14 years old and 2 15-19 years old. The etiology couldn't be established in 69 subjects. This is in accord with the literature data which reveals that in practice the etiology can be obtained only in 40-60% of the cases.

In food poisoning produced by enterotoxic Staphylococcus and Clostridium botulinum the diseases are produced by the ingestion of the preformed toxin in food and secreted by these bacteria. In this situation the toxic aspect is predominant. Based on the literature enterotoxic Staphylococcus is responsible for 20-30% from food poisoning.

Other bacterias like Bacillus cereus, Pseudomonas aeruginosa, Proteus, Streptococcus faecalis, causes food poisoning only in case of massive contamination. Particular aspects, other than botulism, are produced by Vibrio parahaemolyticus (appears especially in food poisoning after ingestion of marine food products), Clostridium perfringens (diarheea with necrotic enteritis aspect) and Bacillus cereus (common in Europe and Asia).

Most frequent, food poisoning appear as epidemic situations in families or collectivises, but also individual cases can be detected. In the last decades, the epidemic food poisoning are increasing in many countries. The most frequent contaminated food are: meat and meat products, fish, milk and milk products, eggs. The tellurian bacilli like Bacillus cereus and Clostridium botulinum can contaminate the vegetables and preserves.

The years distribution in food poisoning with other bacterial etiology than Salmonella revealed a peak of incidents in 2013.

In our study, the most common clinical manifestations detected were nausea and vomitings, noticed in 90% of the patients. Other frequent symptom was diarheea (72% of the cases). Fever has been diagnosed in 60% of the subjects. Neurological manifestations presented 30% of the cases, in majority these were moderate: headache, dizziness, sleepiness, agitation, meningism. In the 4 cases of botulism they were severe. Reactive arthritis was present in 3 patients.

Majority of the subjects presented moderate and mild clinical forms, only 5 cases were severe. The evolution was favourable in all the situations.

CONCLUSIONS

1. The most frequent etiology in children's food poisoning was Salmonella.
2. The incidence of Salmonellosis was increased in small ages.
3. The majority of the cases presented mild and moderate clinical forms, with favourable evolution.

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