

Clinical, epidemiological and laboratory characteristics of hepatitis A outbreak in the village of Iskra (Plovdiv region - Bulgaria), January - March 2012

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ABSTRACT:

Aim: To analyze the clinical, epidemiological and laboratory characteristics of the patients from Iskra village with HAV treated in the Clinic for Infectious Diseases during the period January-March 2012.

Materials/methods: For the period considered a total of 225 HAV patients were hospitalized. Of these, 125 were associated with the epidemic outbreak in the village of Iskra. The diagnosis was verified by anti-HAV IgM. Routine laboratory methods, clinical observations and epidemiological analysis were applied.

Results: Males were 70 (62.9%) and women - 55 (37.1%) from all patients. Thirty-three of the study subjects were not permanent residents in the locality, but have had an epidemiological link. The dynamic of the epidemic outbreak has been analyzed. The average hospital stay was 10 days. The disease was manifested in light and moderate form. Cholestasis component was registered in 3 of the cases. So far no relapses have been registered.

Conclusion: The studied epidemic outbreak is another proof of the endemic-epidemic spread of HAV in Bulgaria. Therefore preventive measures and disease control need to be improved.

Keywords—viral hepatitis A (HAV), epidemic outbreak, epidemiological characteristics, clinical forms

I. INTRODUCTION

Hepatitis A is an acute infectious disease disseminated worldwide. It occurs either as sporadic cases or as epidemic outbreaks which sometimes involve many people [1, 2, 3, 4]. The disease is observed with different frequency in the separate countries. A conclusion for the endemicity of hepatitis A is drawn based on the incidence rate and seroprevalence in any country [5, 6]. Introduction of hepatitis A vaccine in some countries as routine practice has reduced considerably the morbidity and the control of the disease. So far the vaccine is only recommended in Bulgaria [7]. The **aim** of the study is to analyze the clinical, epidemiological and laboratory features of the patients from Iskra village with hepatitis A who were treated in the Clinic for Infectious Diseases (Medical University-Plovdiv, Bulgaria) during the period January-March 2012.

II. MATERIALS AND METHODS

The studied outbreak arose in Iskra village which is situated in Plovdiv region – the second biggest region in Bulgaria with about 400 000 inhabitants. For the period considered (01.01. – 31.03.2012) a total of 225 HAV patients were hospitalized. Of these, 125 were associated with the epidemic outbreak in the village of Iskra. The diagnosis was verified by anti HAV IgM. Routine laboratory methods, clinical observations and epidemiological analysis were applied. The complex method of epidemiological research has been used, including epidemiological history, timely isolation of the patients, observation and laboratory testing of the contacts in the source of infection, disinfection of the contaminated surfaces, dispensary observation of the discharged.

III. RESULTS AND DISCUSSION

During the study period a total of 225 patients with hepatitis A were hospitalized (Table 1). Most of the cases were from Parvomay municipality (125 – 55.5%). In one of the municipality villages (Iskra) an epidemic outbreak burst out affecting 92 inhabitants of the village and 33 people who were temporarily residing there during the outbreak.

Table 1: Distribution of the patients with hepatitis A by communities

Analysis of the dynamics (Diagram 1) shows that the peak of the outbreak was from 03.02.2012 until 09.02.2012. During this period, 65 (52%) of all patients, registered during the epidemic outbreak, became infected.

Diagram 1: Dynamic of the registered cases with hepatitis A in v. Iskra

Most affected among patients with hepatitis A in Iskra were in the age groups 5-9, 10-14, 15-19, 35-39 and 40-44 years. (Table 2). Analysis of age distribution found an increase in the relative share of patients with HAV from the older-age groups (notably from 35 to 44 years) compared with previous research.

Table 2: Age distribution of the patients from v. Iskra

The epidemiological survey carried out in Iskra during the epidemic outbreak revealed frequent failures in the plumbing system and in the water supply regime. This makes it difficult to observe good personal hygiene and instigates villagers to use water with unproven qualities from their own wells or from local water sources. Additional checks after the outbreak in different facilities, including those for production and marketing of food, found out illegal plumbing connections enabling the internal plumbing of the facilities to be supplied entirely with water from local wells or water from wells to be mixed with water from the central water supply system of the village.

Related to this, joint actions were taken by Plovdiv Regional Health Inspectorate, Plovdiv Regional Directorate for Food Safety and Plovdiv Water Supply and Sewerage Ltd. to spot and eliminate these illegal plumbing connections (orders were issued to stop operation of facilities with proven disorders). After the first HAV cases adequate anti-epidemic measure were taken by the Regional Health Inspectorate and Parvomay municipality Water Supply and Sewerage, by general practitioners and by village residents aimed at preventing the epidemic spread of viral hepatitis A, improving the sanitary living conditions, ensuring constant water supply of quality drinking water, and enhancing personal and health education of the population.

Clinical forms of hepatitis A in patients from Iskra village: the most frequently observed clinical form was moderate - in 88 (70.4%) of the patients (Table 3). Unlike our previous studies of outbreaks of hepatitis A, where the most common form was light, it was now observed in only 30 (24%) patients. This can be partly explained by the older age of patients. Similar clinical forms have been observed from other authors [8, 9, 10, 11].

Table 3: Distribution of the patients by clinical form of hepatitis A

Blood bilirubin and alanine amino-transferase (ALT) dynamics are presented respectively in diagram 2 and diagram 3. Aminotransferase levels as an expression of cytolytic activity are in direct correlation with disease severity. The established levels of ALT were considerably high – above 2 000 U/L. They persisted at high level up to 10-11th day of the onset of the disease.

Diagram 2: Dynamic of the blood bilirubin

Diagram 3: Dynamic of alanine amino-transferase (ALT)

IV. CONCLUSIONS

1. This outbreak is another proof of the endemic-epidemic spread of HAV in Bulgaria. It demands for better prevention and control of the disease.
2. A large number of the diseased (60%) were of Bulgarian descent unlike previously reported outbreaks in the region in which patients were predominantly of Roma origin.
3. The majority of cases (70.4%) are considered to be of moderate clinical form. In most of the reported outbreaks from previous years light forms were prevalent. This is explained by the greater proportion of patients of older age.
4. The high HAV incidence in Plovdiv region (as in Bulgaria) - over 30-40/100 000 and much higher in specific years, determines the appropriateness of including HAV vaccine in the immunization calendar of Bulgaria.

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Table 1: Distribution of the patients with hepatitis A by communities

Communities	Plovdiv	Maritza	Rodopi	Stambolijski	Brezovo	Kalotianovo	Saedinenie	Sadovo	Rakovski	Karlovo	Hissar	Parvomai	Asenobgrad	TOTAL
N of cases with cumulation	48	16	8	21	1	5	1	4	3	13	1	100	4	225

Table 2: Age distribution of the patients from v. Iskar

Age group	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	All
N of patients	0	7	15	13	23	12	6	5	14	13	7	6	1	3	0	125

Table 3: Distribution of the patients by clinical form of hepatitis A

Gender/number	Light form	Moderate form	Grave form
Male 70 /56.0%/	19	47	4
Female 55 /44.0%/	11	41	3
Total 125 /100%/	30 /24%/	88 /70.4%/	7 /5.6%/

Diagram 1:

Dynamic of the registered cases with hepatitis A in v. Iskra

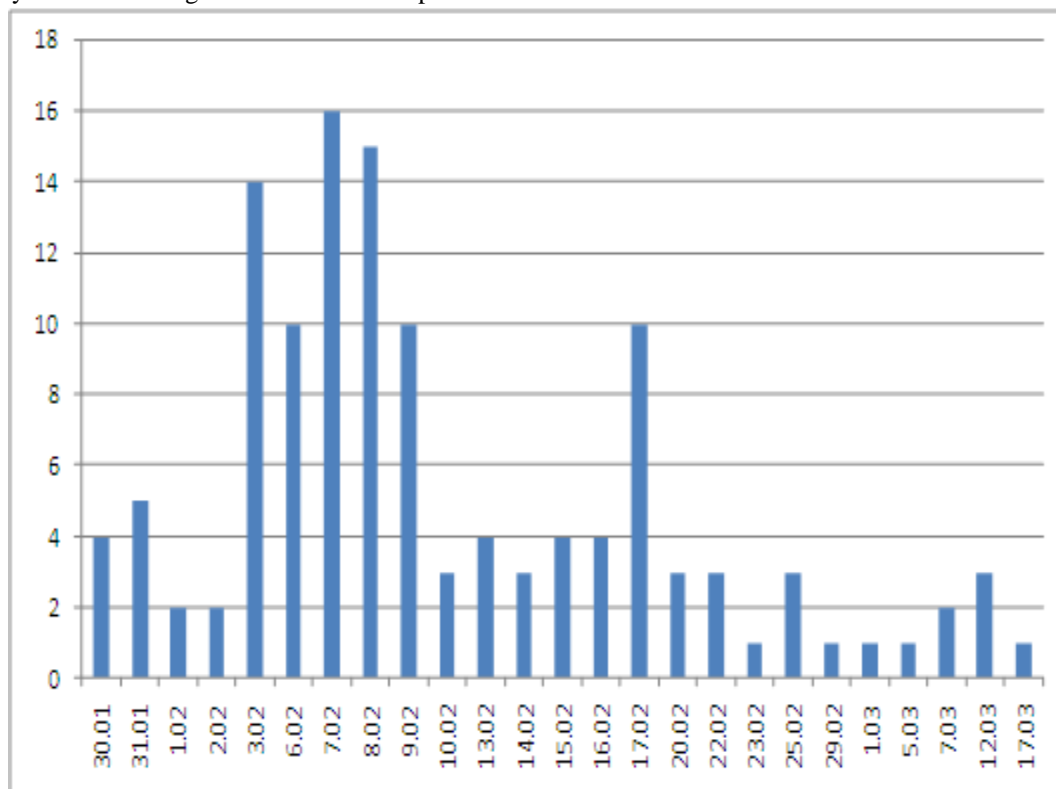


Diagram 2: Dynamic of the blood bilirubin

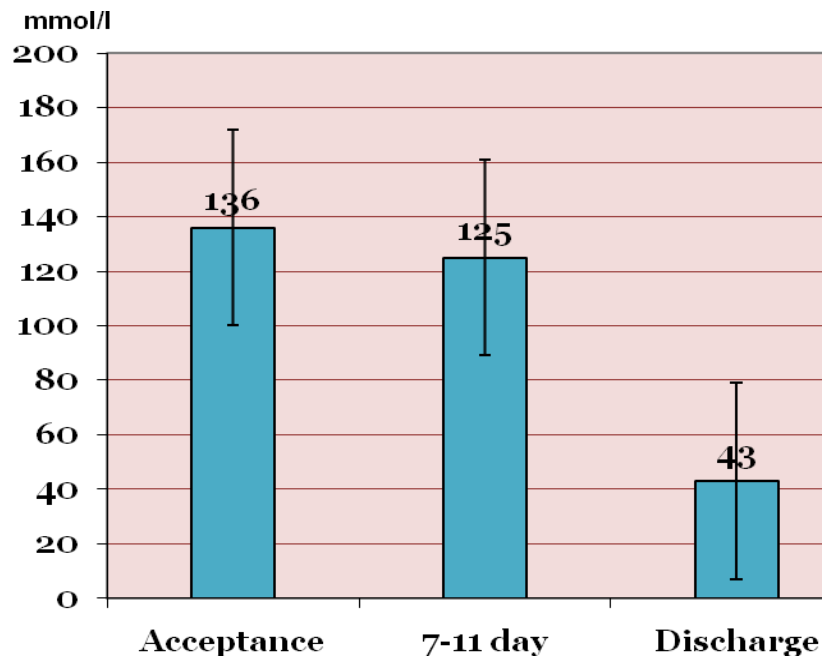


Diagram 3: Dynamic of alanine amino-transferase (ALT)

