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Case report

Co-infection of dengue fever and hepatitis A in a Russian traveler



Elena Volchkova^{a,*}, Karina Umbetova^a, Olga Belaia^a, Maria Sviridova^a,
Ludmila Dmitrieva^a, Daria Arutyunova^a, Dmitriy Chernishov^b, Ludmila Karan^c

^a First Moscow Medical University "I.M. Sechenov", Moscow, Russia^b Moscow Infectious Clinical Hospital #2, Moscow, Russia^c "Central Scientific Research Institute of Epidemiology" Research Institute of Epidemiology, Moscow, Russia

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ABSTRACT

We report a hepatitis A (HAV) and dengue virus (DENV) co-infection in Russian man who had been traveling to Dominican Republic. At admission to the hospital hemorrhagic and jaundice symptoms were observed in patient. PCR tests of blood serum and urine revealed RNA dengue virus type 3, HAV RNA, anti-HAV-IgM.

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In the last 30–40 years, incidence of dengue hemorrhagic fever (DHF) has increased in the Americas and the Caribbean region resulting in greater prevalence of this disease among travelers [1,2]. In several studies, dengue virus infection was documented in 7% to 45% of all returning febrile travelers [3,4].

It should be noted, that in the Caribbean Sea basin hepatitis A is widespread. Therefore high likelihood of co-infection is possible, which manifests itself by polymorphism of clinical appearance making diagnosis difficult and worsening prognosis.

Case report

A 47-year-old patient was admitted to an intensive therapy department of infection hospital in Moscow with acute viral hepatitis A on the 16th day of the illness. He complained of weakness and abdominal discomfort.

30 days before the onset of the disease, the patient had returned from a 15-day trip to Dominican Republic. He had fallen ill acutely with a rising of temperature to 38°C, pain in large joints, loss of appetite and nausea. On the 4th day of the disease urine became dark and sclerae turned yellow. On the 6th day of the disease the patient was admitted to the district hospital. Four days later patient's condition worsened, euphoria and excitability were noted. Therefore he was transferred to the intensive care unit (ICU). During tests HAV-IgM was detected by ELISA method and the patient was then transferred to the Infectious Diseases hospital.

On admission, his was s conscious not clearly aware of his condition, euphoric and talkative, but questions were not always answered appropriately. Meningeal and focal neurological symptoms were not observed. Fever was absent. He had marked hemorrhagic and jaundice symptoms. Abdominal and chest examinations were unremarkable. Laboratory-test results are shown in [Table 1](#). The severity of the patient's condition was due to a combination of renal and hepatic insufficiency, with disseminated intravascular coagulation. Considering the marked renal failure and hemorrhagic manifestations, the diagnoses of hemorrhagic fever with renal syndrome (HFRS) and leptospirosis were considered. The AST and ALT peak were not high because patient was hospitalized later on 16th day of the disease. Antibodies to the virus HFRS hantavirus in reaction indirect immunofluorescence were not detected and microagglutination assay for leptospirosis was negative.

During treatment, the patient received antibacterial therapy (ceftriaxon 4g/day and levofloxacinum 1g/day), disintoxication therapy (electrolytes and colloid solutions) and diuretic therapy. Because of renal failure, continuous venovenous hemofiltration was carried out. On 19th day of illness, he was given intravenous gamma globulin 40g. Periodically, body temperature increased up to 38.3°C that was reduced after administration of nonsteroidal anti-inflammatory drugs.

Taking into consideration the dynamics of the disease, the clinical picture with the accession of hemorrhagic rash, renal failure and the background of a countrywide Dengue epidemic examination for Dengue fever, hemorrhagic form was assigned.

At that point, the diagnosis of dengue hemorrhagic fever was considered and a serum dengue virus PCR was positive. Zika virus and malaria assays by PCR were negative. On the 26 th day of

* Corresponding author.

E-mail address: antononina@rambler.ru (E. Volchkova).

Table 1
Relevant Test Results.

| | In ICU | In infection department |
|----------------------------|---------|-------------------------|
| Hgb (g/dL) | 8.3 | 7.8 |
| WBC (per mm ³) | 21,200 | 6700 |
| RBC (per mm ³) | 2810 | 2570 |
| PLT (per mm ³) | 225,000 | 342,000 |
| Band neutrophils (%) | 11 | 7 |
| Mature neutrophils (%) | 78 | 65 |
| Albumin (g/dL) | 2.8 | 4.5 |
| Total bilirubin (mg/dL) | 9.2 | 0.76 |
| Creatinine (mg/dL) | 1292 | 88.3 |
| Serum urea (mg/dL) | 3.3 | 0.49 |
| ALT | 80 | 88 |
| AST | 33 | 86 |
| Protrombin Index (%) | 64 | 83 |
| INR | 1.56 | 1.2 |

illness, he began to improve and was discharged soon after that to be followed in Infection Disease department N5 in Infectious Disease clinic.

Discussion

This is the first description of the HAV with DENV coinfection in Russian citizen with the development of acute renal failure, imported from the Dominican Republic. Severe course of HAV with DENV coinfection with the development of acute liver failure was

described by doctors from India [5]. The presented case history is exclusive currently, but the broadening of the tourist flow to the Caribbean region could increase the frequency of occurrence of such cases.

A stay in Dominican Republic may be accompanied by simultaneous infections by various infectious agents, therefore it is necessary to carry out complex screening tests for a variety of endemic agents of a given territory in proper time in order to carry out early and adequate therapy.

Conflicts of interest

None of the authors have any conflicts of interest to declare.

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