Case report

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

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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.

On admission, his was 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 4 g/day and levofloxacinum 1 g/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 40 g. 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 26th day of
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.

References

[1] Fisk T, Robins R, von Sonnenburg F, et al. Spectrum of disease and relation to place of exposure among ill returned travelers. N Engl J Med 2006;354:119–30.
[2] Tsai TF, Niklasson B. Arboviruses and zoonotic viruses. In: DuPont HL, Steffen R, editors. Textbook of travel medicine and health. 2nd ed. Hamilton, Ontario: BC Decker; 2001. p. 290–312.
[3] Corachan M, Grobusch MP, Knobloch J, et al. Epidemiology and clinical features of imported dengue fever in Europe: sentinel surveillance data from TropNetEurop. Clin Infect Dis 2002;35:1047–52.
[4] Puente S, Siikamaki H, Gjorup I, et al. Severe dengue virus infection in travelers: risk factors and laboratory indicators. J Infect Dis 2007;195:1089–96.
[5] Taneja Sunil, Borakokty Amritangsu, Duseja Ajay, Dhiman Radha Krishan, Chawla Yogesh. Acute liver failure caused by hepatitis a virus with dengue coinfection. J Clin Exp Hepatol 2016;6(2):164.

### Table 1

Relevant Test Results.

| Test          | In ICU | In infection department |
|--------------|--------|-------------------------|
| Hgb (g/dL)   | 8.3    | 7.8                     |
| WBC (per mm³) | 21,200 | 6700                    |
| RBC (per mm³) | 2810   | 2570                    |
| PLT (per mm³) | 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                     |