

Dengue associated hepatitis: two case reports and literature review


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Background

Hepatic involvement in non-hepatotropic virus infections such as Dengue Fever is becoming more frequent. Dengue is an important arboviral disease, with at least 3.7 million cases and 2000 deaths reported in 2023. It affects mostly areas of Southeast Asia and South America, but global travel means that we must be prepared to recognize and treat the disease in all hospitals. Dengue leads to multiorgan involvement. Liver involvement ranges from asymptomatic transaminase elevation to acute liver failure. Transaminase elevation also correlates with disease gravity. We hereby describe two cases of Dengue Fever in two Italian travelers returning from South America and who presented persistent elevated levels of transaminases, affecting hospitalization length of stay. Then we describe the problem according to literature data.

Case presentation

The first one is the case of a 28 years old male returning from Santo Domingo who started developing a skin rash on the last day of his trip, associated with high fever and arthralgia and came in our Infectious Diseases Unit after 7 days. NS1 antigen was detected on his blood. On day 7 high transaminase levels were detected in his blood tests, AST/ALT 362/822 which then decreased very slowly and became normal again after five days. Bilirubin and coagulation were normal. An abdominal ultrasound revealed hepatic steatosis.

The second one is the case of a 16 years old female returning from Brazil and after two days developed high fever, epistaxis, headache and arthralgia. On admission she had AST/ALT values of 347/288 and 121.000 platelets/uL. Rapid antigen testing turned out positive for dengue virus. A diagnosis of vascular catheter related thrombosis was made, which prompted antibiotic and anticoagulant treatment. Despite this, transaminase values became normal on day 10 after admission.

Both patients were screened for HBV, HCV and HAV antibodies, all negatives.

	CASE 1		CASE 2	
	AST	ALT	AST	ALT
Admission	241 mUI/mL	439 mUI/mL	347 mUI/mL	288 mUI/mL
Day7	362 mUI/mL	822 mUI/mL	175 mUI/mL	119 mUI/mL
Discharge	20 mUI/mL	14 mUI/mL	38 mUI/mL	52 mUI/mL

Diagnostic test	CASE 1	CASE 2	Materials
Molecular test, RT-PCR	✓	—	EDTA Blood
Dengue Virus Antigene(NS1)	✓	✓	Serum
Antibodies IgM	✓	✓	Serum

Discussion

Liver toxicity is a crucial feature seen in dengue infection, with hepatocytes and Kupffer cells being prime targets, as confirmed in biopsies and autopsies. Raised AST levels have been seen in 63%-97% of patients, while raised ALT levels in 45%-96% of patients. In most studies, elevation in AST is more than ALT, more during the first week of infection, with a tendency to decrease to normal levels within three weeks. The average levels of AST range from 93.3 U/L to 174 U/L, while ALT from 86 U/L to 88.5 U/L in various studies. Median AST and ALT values have been found to be higher for severer forms of dengue. Although hepatic disfunctions is usually self-limiting, it may pose considerable challenges in the wake of persistent high fever and the need to administer antipyretic drugs such as paracetamol. Given the last autochthonous cases, Dengue should be considered as a cause of hepatitis with febrile hypertransaminasemia also in Italy.

References

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