

LETTER

An unusual case of false positive hepatitis C infection

George Karlis, Zafiria Mastora, Sotirios Kakavas, Elpida Pantikidi, Anastasia Kotanidou

1st Department of Intensive Care Medicine, University of Athens, Greece.

To the Editor,

Hepatitis C virus (HCV) is a leading cause of death from liver disease worldwide. The diagnosis of HCV infection is usually made with a positive HCV antibody test and a subsequent positive molecular test that detects the presence of HCV RNA. The interpretation of anti-HCV values that are close to laboratory cut-offs can be challenging. We present a bizarre case of a woman who converted her HCV antibody status during her intensive care unit (ICU) hospitalization.

A 78-year-old Caucasian woman was admitted to our ICU after surgery for strangulated abdominal hernia. The HCV antibody test at admission was negative. Her post-operative course was complicated with surgical site infections and entero-enteral fistulas, so she underwent three more surgeries. After the last surgery a vacuum-assisted closure (VAC) device was placed (Fig. 1). During this period she received a total of 9 units of packed red blood cells to treat anemia induced by the surgical procedures. Two months after her admission she was transferred to the step down unit. A new HCV antibody test was then routinely ordered that was positive with a signal-to-cutoff ratio (S/CO) of 3.52. A recombinant immunoblot assay (RIBA) was performed for confirmation and came also positive. In order to rule out the unlike event of a mislabeled sample we retested the patient for anti-HCV a few days later. The result was again positive (S/CO 3.58) and RIBA was undetermined.

At that time the patient had no signs of liver disease and her aminotransferase levels were within normal limits. We ordered an HCV core antigen test and an HCV-RNA quantitative test. The antigen test was negative and the HCV-RNA was undetectable (<20 IU/ml). We therefore considered that the reactive HCV antibody test and RIBA were false positive.

Our laboratory utilizes the “Abbott Architect Anti-HCV assay”. According to the manufacturer a result with S/CO ≥ 1.00 is interpreted as positive. The reported overall sensitivity of the test is 99.10% and the specificity is 99.60%. A number of conditions have been associated with false positivity (Table 1). Cross-reactivity triggered by an infection other than HCV is considered one of the most common culprits (1). Interestingly there are several reports in the literature about false positive HCV antibody tests after left ventricular assist device (LVAD) implantation. Although the exact mechanism for this phenomenon remains unknown, it is speculated that



Fig. 1.

immune activation caused by LVAD may be implicated (2).

Our patient exhibited a bizarre false positive HCV antibody test two months after a negative test at her admission. During this period a VAC therapy was commenced. VAC is known to have immunomodulatory

Correspondence to : Dr George Karlis
E-mail : georgekarlis@yahoo.com

Submission date : 02/12/2016
Acceptance date : 05/01/2018

Table 1. — Reasons of false positivity of anti-HCV tests

Causes	Predisposing factors
Repeated freezing and thawing of serum samples	Low risk populations
Heat-inactivation of serum samples	Immunocompromised patients
Systemic lupus erythematosus (SLE),	Populations without liver disease
Rheumatoid arthritis (RA),	
Portal cirrhosis	
Infectious diseases	

properties by enhancing the production of growth factors and cytokines (3). We assumed that a link between VAC placement and HCV false positivity may exist. To our knowledge this possibility has not been reported before and merits further investigation.

References

1. KESLI R. Evaluation of assay methods and false positive results in the laboratory diagnosis of hepatitis C virus infection. *Archives of Clinical Microbiology*, 2011, **2** : 1.
2. SRIVASTAVA AV, HROBOWSKI T, KRESE L, HUANG MA, NEMEH H, TITA C, *et al.* High rates of false-positive hepatitis C antibody tests can occur after left ventricular assist device implantation. *ASAIO J.*, 2013, **59** : 660-1.
3. GLASS GE, MURPHY GF, ESMAEILI A, LAI LM, NANCHAHAL J. Systematic review of molecular mechanism of action of negative-pressure wound therapy. *Br. J. Surg.*, 2014, **101** : 1627-36.