

# HCV infection and pericarditis: an extrahepatic manifestation?

## *Infezione da HCV e pericardite: una manifestazione extraepatica?*

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### ■ CASE REPORT

**A** twenty-three-year-old was admitted into hospital suffering from acute pericarditis which was diagnosed both clinically and instrumentally. This problem arose suddenly without any warning symptoms. The patient was suffering from precordial thoracic pains, low fever, Bright's murmur, and widespread high takeoff ST. During diagnostic investigations the patient was found to be suffering from hepatomegalia, associated with a significant increase in transaminases. The young person was thus admitted to the Infectious Diseases and Hepatic Unit. The anamnesis does not supply any particular information; the young person, however, the patient was an occasional intravenous drug addict. An objective examination reveals the presence of Bright's murmur and hepatomegalia only. Laboratory tests show an increase in transaminases: ALT = 7.96 mkat/l, and AST = 2.38 mkat/l. Other parameters are normal. Tests for HIV give negative results. Aetiological tests give the following results: EBV, CMV, rubella, Influenza A and B, Coxsackie A and B, HSV 1 and 2, HIV, ECHO, HAV, HBV, and anti-HCV are all negative. Quantitative HCV-RNA (PCR) >850,000 IU/ml. This information allows us to diagnose acute hepatitis due to HCV, contemporarily excluding co-infection from other infectious agents for the pericarditis. The patient is thus treated with a symptomatic therapy and with ASA, but not with IFN therapy. During hospitalization the clinical course was regular, with rapid disappearance of the thoracic pain, the fever and Bright's murmur and a progressive reduction in

the transaminase levels. On discharge, after 14 days of hospitalization, the high takeoff ST was reduced, being confined within the derivations of V4, V5 and V6, and the transaminase levels were: ALT = 5.8 mkat/l and AST = 2.0 mkat/l. During the out-patient's follow-up, the ECG is normal 15 days after discharge, the transaminases remain high, and anti-HCV values appear, HCV RNA, type 1b genotype, persist after 6 months. Crieglobulin analysis, which was not carried out during hospitalization, is negative during the follow-up.

### ■ DISCUSSION

Cardiac tissue can be the target of several viruses. Coxsackie B virus and other enteroviruses, and also adenovirus, CMV and many others are certainly responsible for diverse cardiac pathologies, both in the myocardium and the pericardium. Recently, the hepatitis C virus has been considered to be an aetiological agent for some forms of cardiomyopathies [1]. In particular, a multi-centre study carried out in Japan has shown that there is a prevalence of anti-HCV antibodies in 10.6% of patients with hypertrophic cardiomyopathy and in 6.3% of patients with dilated cardiomyopathy. Such results show a higher percentage than the 2.6% of voluntary blood donors in Japan showing this result [2]. In the same study, the authors found several cardiac anomalies among anti-HCV positive subjects, and amongst these arrhythmia was most frequent. Confirmation of the presumed aetiological role of the hepatitis C virus in hypertrophic car-

diomyopathy is shown in another study, by the same Japanese authors, in which they demonstrate a significant prevalence of infection in patients suffering from hypertrophic cardiomyopathy compared with the control patients [3]. It has been suggested that HCV is related to the unfamiliar hypertrophic apical cardiomyopathy [4]. Matsumori *et al.* researched the presence of HCV-RNA in cardiac tissue from patients who died from myocarditis and cardiomyopathies, and they found the viral genome in 33.3% of the myocarditis cases, 26% of the cardiomyopathy cases and 6.6% of the dilated cardiomyopathy cases. The difference in the frequency of HCV-RNA in patients suffering from myocarditis/cardiomyopathy and those suffering from myocardial heart attack or without cardiac pathologies is statistically significant: 12.3% against 0% [5]. An aetiological role for HCV has been proposed for the rare form of chronic myocarditis, hypothesizing either a contribution towards the maintenance of the inflammatory activity in the myocardium or a trigger role, mediated by an autoimmune mechanism [6]. An Italian study hypothesized an aetiological action of HCV in 6% of myocarditis cases, even demonstrating a beneficial effect of the immunosuppressive therapy in HCV correlated myocarditis. This happened even though the viral genome persisted. The

authors suggest an immuno-mediated mechanism for the damage [7]. Naturally, on the basis of the hypothesis of an aetiological-pathogenic action of the hepatitis C virus in cardiomyopathy, interferon therapy was used, giving positive results in at least one case of dilated cardiomyopathy [8].

All these studies are, however, at least partially contradicted by other authors: a Greek study denies any association, at least in Greece, between HCV infection and dilated cardiomyopathy, negative evidence which is confirmed in a multi-centre study carried out in Italy [9, 10]. In the case described in this report, we found no mention in the literature of association between pericarditis and HCV infection. This does not exclude, in the light of what has been reported, that there may be a connection between the two pathologies. The evidence of the role of the hepatitis C virus in the pathogenesis of several cardiac anomalies is upheld by a significant quantity of data with the exception of the two above-mentioned studies, which in truth just cast doubt on the association with dilated cardiomyopathies. Thus the pericardium, and other cardiac structures, could be a direct or indirect target of viral action, albeit infrequently.

*Key words:* Acute hepatitis, HCV, acute pericarditis

## SUMMARY

The authors describe a clinical case in which they found the unusual combination of acute hepatitis caused by HCV and pericarditis in a young person, resulting in complete recovery from the pericarditis but in a deterioration of the chronic HCV. A close examination of the

literature on this subject revealed that, although no similar case was recorded, an aetiological relationship between the hepatitis C virus and pericarditis cannot be excluded since an HCV infection often gives rise to extra-hepatic cardiac problems.

## RIASSUNTO

*Gli autori descrivono il riscontro di una inusuale associazione di epatite acuta HCV correlata e pericardite in un giovane paziente, giunto alla completa remissione dalla pericardite ma con la cronicizzazione dell'epatite. Un'accurata disamina dei lavori della letteratura ha evidenziato che, pur in*

*assenza di analoghe segnalazioni, l'esistenza di una relazione etiologica tra il virus dell'epatite C ed episodi di pericardite non può essere del tutto esclusa. Infatti, non è rara l'insorgenza di manifestazioni extra-epatiche, ad esempio cardiache, a seguito di infezione da HCV.*

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