

## Anticardiolipin Antibodies in Chronic Hepatitis C: Implication of Hepatitis C Virus as the Cause of the Antiphospholipid Syndrome

**J. Prieto, J.R. Yuste, O. Beloqui, M<sup>a</sup> P. Civeira, J.I. Riezu, B. Aguirre, and B. Sangro**

*Department of Medicine and Liver Unit, Clínica Universitaria, University of Navarra*

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Antiphospholipid antibodies are a type of autoantibodies that have been implicated in the occurrence of thrombocytopenia and thrombotic events and have been described in autoimmune disorders and diverse viral diseases. In this study anticardiolipin antibodies (immunoglobulin G [IgG] isotype) were determined in serum from 100 patients with chronic hepatitis C and 52 healthy controls. In addition, hepatitis C virus (HCV) markers (anti-HCV and CV RNA) were investigated in 73 patients with thrombotic disorders and no clinical evidence of liver disease; of these patients 37 cases tested negatively for anticardiolipin antibodies and 36 positively. Anticardiolipin test was positive more frequently (22 %) in the group of patients with

chronic hepatitis C than in healthy controls (1.9 %;  $P < .001$ ). Using conditional logistic-regressions analysis we found that in hepatitis C patients the presence of thrombocytopenia, portal hypertension and the existence of prior thrombotic episodes were significantly related to positivity for anticardiolipin antibodies ( $P < .05$  in all cases). In patients with no evidence of liver disease and a history of thrombotic events, hepatitis C markers were absent in all cases who tested negatively for anticardiolipin antibodies ( $n = 37$ ), but were present in 16.7 % of those positive for anticardiolipin ( $n = 36$ ) ( $P = .01$ ). In conclusion, anticardiolipin antibodies are frequently found in patients with chronic hepatitis C and in these patients they may be implicated in the occurrence of thrombosis and in the development of thrombocytopenia. Occult HCV infection is present in a significant proportion of patients with thrombotic disorders and positive for anticardiolipin (the antiphospholipid syndrome).

## Utilidad clínica de un nuevo inmunoensayo para determinar la concentración plasmática de los complejos plasmina-antiplasmina

**R. Montes, J.A. Páramo, J. Orbe, Carlos Chordá, Eduardo Rocha**

*Laboratorio de Pared Vascular y Trombosis. Servicio de Hematología. Clínica Universitaria. Facultad de Medicina. Universidad de*

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A monoclonal antibody (Mo Ab) based ELISA assay to measure plasma concentrations of plasmin-antiplas-

min (PAP) complexes has been developed. After purification of PAP from fresh plasma we obtained a pool of Mo Abs against complexes by immunizing BALB/c mice with the purified material. Two of them, CPL12 and CPL15, were selected for the ELISA. This assay was applied to plasma samples from healthy donors and patients under different clinical conditions where