Parvovirus B19 Genome in Endomyocardial Biopsy Specimen

To the Editor:

A variety of cardiotropic viruses have been identified in the past to elicit myocarditis but rarely with parvovirus B19 (PVB19) as a causative agent in children and adolescents. However, PVB19 recently has emerged as another potential pathogen in adult patients with inflammatory heart disease. In the August 28, 2003, issue of Circulation, Kühl et al reported the association of PVB19 genome in endomyocardial biopsies in the clinical setting of acute myocardial infarction. Follow-up of a subgroup of PVB19-positive patients revealed that viral persistence may be associated with progression of left ventricular dysfunction.

In a much larger cohort of 110 consecutive patients with suspected inflammatory heart disease, prevalence of PVB19, Coxsackievirus (CVB), and adenovirus (Ad2) genome was assessed by polymerase chain reaction, immunohistochemistry, and histopathology of endomyocardial biopsies. For control, biopsies of patients with arterial hypertension were studied. We have extended the number of investigated patients over a period of 3 years, including 208 individuals before and after therapy, where we confirmed the prevalence of PVB19 genome in endomyocardial biopsies to be highest in patients with inflammatory cardiomyopathy (23%) and in patients with myocarditis (19%). In patients with dilated cardiomyopathy and perimyocarditis, prevalence was 23% and 16%, respectively. In contrast, patients with resolved myocarditis had no detectable endomyocardial PVB19 genome, and in patients without inflammation/ dilatation and in controls, prevalence was 4% and 7%, respectively. Except for PVB19, CVB RNA was the most frequently detected viral genome. In patients with myocarditis, 8% were found to be positive for CVB RNA in endomyocardial biopsy and 5.5% were found to be positive for CVB RNA in peripheral blood. Ad2 DNA was found in myocardial tissue specimen in 5% of patients with dilated cardiomyopathy and 8% of patients with perimyocarditis.

These findings underline the role of PVB19 in the etiology of inflammatory heart disease, which in early stages may mimic acute myocardial infarction, as seen regularly in pericardial involvement in our patients. Frequency and clinical importance of PVB19 infection of the myocardium may be underestimated. Therefore, we suggest that routine detection of PVB19 genome by polymerase chain reaction from endomyocardial biopsies should be added to the standard clinical, molecular-biological, and immunohistochemical investigations in patients with suspected inflammatory heart disease, in order to establish a definite, rapid diagnosis and to examine pericarditis and effusion that by ECG may mimic myocardial infarction.

Sabine Pankuweit, PhD
Steffen Lamparter, MD
Michael Schoppet, MD
Bernhard Maisch, MD
Department of Internal Medicine–Cardiology
Philipps-University Marburg
Baldinger Strasse
35043 Marburg, Germany
pankuwei@mailer.uni-marburg.de


Correspondence
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Sabine Pankuweit, Steffen Lamparter, Michael Schoppet and Bernhard Maisch

Circulation. 2004;109:e179
doi: 10.1161/01.CIR.0000124881.00415.59
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

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World Wide Web at:
http://circ.ahajournals.org/content/109/14/e179

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