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Differential diagnosis of biopsy-proven myocarditis and inflammatory cardiomyopathy

Myocarditis and inflammatory cardiomyopathy (CMi) are a challenging diagnosis due to the heterogeneity of clinical presentation which is highly variable and ranges broadly from subclinical symptoms to fulminant heart failure. Because the clinical course of myocarditis and CMi is unpredictable and the non-invasive diagnostic tests – including ECG, echocardiography, MRI, and serological tests - are limited in their ability to make a clear-cut diagnosis, all patients with clinically suspected myocarditis and CMi have to undergo endomyocardial biopsy (EMB), before irreversible and thus untreatable damage to the myocardium has developed. The exact analysis and quantification of intramyocardial infiltrates have been shown by multivariate regression analysis to be independent predictors of the clinical outcome. Viruses are considered the most common cause of acquired myocarditis and CMi. Persistence of entero/and adenovirus in the myocardium has been associated with ventricular dysfunction and viral genome clearance with improvement of ventricular function and a better 10-year prognosis. Furthermore, distinct genotypes of erythroviruses including parvovirus B19 and human herpesvirus type 6 (HHV6A/B), among many others, have been identified with varying degrees of frequency in cardiac tissues. For example, erythorvirus genomes with proof of active replication - accompanied with intramyocardial inflammation - is associated with worse prognosis. Persistent high viral loads of HHV-6 genomes in blood cells or tissues are excluding active infection and confirm chromosomal integrated (ci) HHV-6 presence. Monitoring of viral RNA load is the best indicator for an effective therapy or reactivation of ciHHV-6. Moreover, because of a very high sampling error especially in patients with giant cell myocarditis, eosinophilic myocarditis, and cardiac sarcoidosis, novel biomarkers like microRNAs and gene expression profiling are introduced in the molecular examination of EMBs and are new tools for a significant improvement of diagnosis. In conclusion, the examination of histology, immunohistology, virology and molecular biology is the basis for a rational, causal, personalized and specific therapy.

Biography

Dr. Heinz-Peter Schultheiss, Professor of Internal Medicine and Cardiology is CEO of Institute for cardiac diagnostic and therapy (IKDT) Berlin, Germany since 2003. He was the chairman of the Working group “Inflammatory heart muscle diseases“ of the German Society of Cardiology, Chairman of the “Working Group on Myocardial and Pericardial Disease“ of the European Society of Cardiology, Member of the "Council on Cardiomyopathies“ of the International Society of Cardiology, Chairman of the Medical Society Berlin, Member of German Society for Internal Medicine, Member of European Society of Cardiology.

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