O182

Abstract (oral session)

Broad virus detection in cardiac tissues of adult patients with idiopathic dilated cardiomyopathy by use of PCR coupled to electrospray-ionisation time-of-flight mass spectrometry analysis

L. Andreoletti*, M. Picard-Maureau, N. Leveque, F. Renois, D. Talmud, C. Boulagnon, P. Brunevald, P. Fornes (Reims, FR; Frankfurt, DE; Paris, FR)

Background: There are still controversies in the importance of several common human viruses and unexplained dilated cardiomyopathy, partially due to lack of standardized and reliable quantitative detection molecular assays in cardiac tissues. Objectives: To evaluate new reliable molecular assays in order to confirm the prevalence of several viral infections and to assess the viral genomic load levels in heart tissues. Methods: Fifty-two fixed explanted or post-mortem myocardial samples were obtained from 24 patients with idiopathic dilated cardiomyopathy (DCM). Control samples were collected from 14 adult patients who died accidentally or by committed suicide. Viral genomes (RNA/DNA) were detected and semi-quantified using broad-range PCR amplification assays coupled to electrospray ionization/ time-of-flight mass spectrometry analysis (PCR/ESI-TOF MS) and by classical quantitative real-time PCR (Q rt-PCR) assays. Results: Sixteen (67%) of the 24 DCM patients were positive for single or multiple viral genome detection (HHV6=1 (4%); Human Enterovirus (EV)=4 (17%); PVB19=5 (21%); EV-PVB19=6 (25%)) and correlating well with EV and PVB19 detection by classical Q rt-PCR assays (kappa tests= 0.69 [0.44-0.92; 95%] and 0.49 [0.22-0.74; 95%], respectively). Levels of EV genomic RNA (mean value= 511 copies/µg of isolated nucleic acids) were well correlated with those obtained by classical Q rt-PCR assays (r=0.6, P=0.048), whereas levels of PVB19 DNA (mean value= 481 copies/ µg of isolated nucleic acids) were not correlated with those obtained by classical molecular techniques (r=0.36, P=0.3). No viral DNA or RNA genome was detected in any controls. Conclusions: Our findings confirm a high prevalence of EV and PVB19 infections in heart tissue samples of idiopathic DMC patients. Moreover, the moderate mean viral load levels estimated in cardiac tissues suggested that EV and PVB19 might be preferentially involved in persistent infections in the pathogenesis of DCM. The PCR ESI/TOF MS Technology is a valuable method to detect a broad range of viral infections in myocardial tissue.