P1791

Abstract (poster session)

Viral genome detection and quantitation in explanted heart tissue of end-stage dilated cardiomyopathy adult patients using broad-range polymerase chain reaction (PCR) amplification coupled with mass spectrometry analysis

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Objectives: Several common viruses are suspected to be etiological causes of idiopathic dilated cardiomyopathy. Here, we identified cardiac viral infections and we assessed the viral load levels in IDCM patients. Patients and Methods: A broad range of viruses were semi-quantified using a technology based on PCR assays coupled to mass spectrometry analysis (PCR/ESI-TOF MS) and in comparison by classic real-time PCR assays in 68 explanted heart samples obtained from 34 IDCM adult patients, and in 28 cardiac samples collected from 14 healthy heart controls. Results: Thirty-nine (57%) of the 68 heart samples were positive for single (87%) or multiple (13%) viral genomes detection using the new and classical molecular assays, corresponding to twenty-five (73%) of the 34 IDCM patients: HHV6 (Human Herpes Virus 6)-Human Enterovirus (EV)=1 (4%); EV=8 (32%); PVB19 (Human Parvovirus B19)=9 (36%); EV-PVB19=7 (28%). PCR/ESI-TOF MS results correlated well with EV and PVB19 detection by classical PCR assays (kappa tests= 0.75 [0.51–0.99; 95%] and 0.63 [0.40–0.86; 95%], respectively). Moderate levels of EV genomic RNA (median value= 511 [178–3200] copies/µg of total extracted nucleic acids) and of PVB19 DNA (median value= 490 [34–2000] copies/µg of total extracted nucleic acids) were measured using PCR/ESI-TOF MS and showed no correlation with the time course of disease (P>0.2). Only two of the 14 control subjects were positive for viral genome detection (PVB19). Conclusions: We identified single or mixed EV and PVB19 cardiac infections as leading potential causes of IDCM. The low viral load levels were compatible with chronic persistent cardiac infections.