Fas-FasL expression and myocardial cell apoptosis in patients with viral myocarditis

T.F. Huang¹, X.H. Wu², X. Wang³ and I.J. Lu⁴

¹Department of Emergency, Linyi People’s Hospital, Linyi, Shandong, China
²Hemodialysis Room, Linyi People’s Hospital, Linyi, Shandong, China
³Department of Neurosurgery, Rizhao People’s Hospital, Rizhao, Shandong, China
⁴Linyi City of Shandong Province Women’s and Children’s Hospital, Linyi, Shandong, China

Corresponding author: X.H. Wu
E-mail: wangyibiao2015@126.com

Received September 9, 2015
Accepted December 14, 2015
Published June 21, 2016
DOI http://dx.doi.org/10.4238/gmr.15027607

ABSTRACT. The aim of the current study was to investigate Fas and FasL expression and myocardial cell apoptosis in viral myocarditis patients. Human heart specimens were selected from patients who were autopsied between February 2012 and February 2015; of these, 25 patients were diagnosed with viral myocarditis. Another 15 cases with no diagnosis of myocarditis were selected for the control group. All tissue specimens were divided into two parts, one for reverse transcription-polymerase chain reaction analysis and the other for immunohistochemical and terminal deoxynucleotidyl transferase dUTP nick end labeling (TUNEL) analyses. In situ detection of apoptosis was performed by the TUNEL method, which revealed that myocardial cells from the viral myocarditis group exhibited significant apoptosis, whereas no apoptotic cells were observed in the control group. The number of cells staining positive for Fas and FasL protein in the viral myocarditis group was significantly higher than that in the control group (P < 0.05). There was also a correlation between Fas and FasL protein...
expression levels and scores ($r = 0.92$, $P < 0.05$). The mRNA expression of Fas and FasL was significantly higher in the viral myocarditis group than in the control group ($P < 0.05$). In conclusion, the Fas-FasL system may be involved in the pathogenesis of viral myocarditis. Furthermore, cytotoxic T lymphocytes may mediate cardiac muscle cells apoptosis via Fas-FasL signaling, and thus participate in the pathogenesis of viral myocarditis.

**Key words:** Fas; FasL; Viral myocarditis; Apoptosis