

6th International Conference on

Genomics & Pharmacogenomics

September 12-14, 2016 Berlin, Germany

Dynamics of PBMC gene expression during Peginterferon/Ribavirin combination therapy in hepatitis C virus genotype 1b-infected patients

Chia-Yen Dai^{1,2}¹Kaohsiung Medical University Hospital, Taiwan²Kaohsiung Medical University, Taiwan

Hepatitis C virus (HCV) can replicate in peripheral blood mononuclear cells (PBMCs). This study explored the dynamic gene expression profiles of PBMCs from chronic HCV-1 patients undergoing Peginterferon/Ribavirin (PR) therapy. PBMCs were collected at baseline and on weeks 1 and 4 from 27 chronic HCV-1 patients treated with a 48-week PR regimen (screening dataset n=7; validation dataset n=20). A sustained virologic response (SVR) was defined as undetectable HCV RNA throughout the 24 weeks after the completion of therapy. An Affymetrix microarray was used to identify differentially expressed genes between SVR and non-SVR patients and was validated by quantitative PCR. We found 13 genes at week 1 and 24 genes at week 4 were differentially expressed in the SVR group compared with the non-SVR group. Eight target genes (RSAD2, LOC26010, HERC5, HERC6, IFI44, SERPING1, IFITM3 and DDX60) were selected at week 1 as the major components of a scoring method to predict the treatment outcome for HCV-1 patients. This predictive model reliably stratified the responders and non-responders at week 1 [AUC=0.89, p=0.007 for SVR; AUC=0.95, p=0.003 for complete early virologic response (cEVR)], especially among patients carrying the favorable IL28B rs8099917 TT genotype (AUC=0.89, p=0.002 for SVR; AUC=1.0, p=0.008 for cEVR). The performance of this predictive model was superior to traditional predictors, including the rapid virologic response, viral load and IL28B genotype. We concluded that the genetic model can be used to predict the treatment efficacy of Peginterferon/Ribavirin therapy for HCV-1 patients within one week, especially those carrying the IL28B TT genotype.

Biography

Chia-Yen Dai has completed his MD and PhD from Kaohsiung Medical University, Kaohsiung, Taiwan. He is the Director of Health Management Center and Department of Occupational and Environmental Medicine, the Visiting Staff of Hepatology Division, Department of Internal Medicine, Kaohsiung Medical University Hospital. He is also a full Professor of College of Medicine, Kaohsiung Medical University. He has published more than 200 papers in reputed journals and has been serving as an Editorial Board Member of medical journals.

daichiayen@gmail.com

Notes: