Roles of Fas/Fasl, Bcl-2/Bax, and Caspase-8 in rat nonalcoholic fatty liver disease pathogenesis

C.P. Li¹, J.H. Li², S.Y. He¹, P. Li² and X.L. Zhong¹

¹Department of Gastroenterology,
The Affiliated Hospital of Luzhou Medical College, Luzhou, China
²West China School of Medicine, Sichuan University, Chengdu, China

Corresponding author: C.P. Li
E-mail: changpinglicn@126.com

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ABSTRACT. The aim of this study was to investigate the roles of Fas/Fasl, Bcl-2/Bax, and Caspase-8 mRNA expressions in nonalcoholic fatty liver disease (NAFLD). The apoptosis percentage was measured by flow cytometry, the immunohistochemical assay was performed for the determination of Fas, FasL, Bcl-2, and Bax expressions, and a real-time polymerase chain reaction (PCR) assay was performed to detect Caspase-8 mRNA expression. Flow cytometry showed that the apoptosis percentage of the rat liver in the experimental group increased, which increased more obviously with the extension of modeling time. Immunohistochemistry showed that with increasing hepatic steatosis, Fas and FasL protein staining intensified and the number of positive cells increased; the number of positive cells for Bcl-2 and Bax gradually increased on the 4th, 8th, and 12th weeks in the experimental group, whereas the Bcl-2/Bax ratio decreased. The real-time PCR assay showed that Caspase-8 mRNA expression increased with increasing hepatic steatosis and inflammation, exhibiting a progressively rising
Hepatocyte apoptosis could promote NAFLD progression; Fas, FasL, and Caspase-8 mRNA activation were important contributing factors to NAFLD. The upregulation of Bax and Bcl-2 expression might be one important mechanism of the apoptosis in NAFLD.

**Key words:** Nonalcoholic fatty liver disease; Apoptosis; Fas/FasL; Bcl-2/Bax; Caspase-8