Abstract

Background and Aim: Bile-duct injury is regarded as Fas-mediated cell death in immune-mediated cholangiopathy. Although livers exhibit only minimal morphological change with age, how older or Fas mutation livers tolerate pathological as bile duct occlusion is unknown. The primary purpose of this study was to investigate how aging affects CD4+CD25+ regulatory T cells (Treg) after bile duct ligation (BDL)-induced liver injury in MRL/lpr mice. Second end points were to analyze the potential mechanism of apoptosis response within the liver.

Methods: Twenty-eight female MRL/lpr mice, ranging from 7 to 23 weeks of age were collected for CD8+ and Treg calculated by flow cytometry. The total antioxidant capacity (ACL, lipid-soluble antioxidants) of serum sample was analyzed by Photo-chemiluage, were divided into four groups (n=7). Young (7-8 weeks old) and young mice received bile duct ligation. Old (22-23 weeks old) and old mice received bile duct ligation. Three days after surgical the blood samples minitomer. Hepatic samples for histopathology, MnSOD and apoptosis parameters by Western blot. Messenger RNA was quantified via real-time polymerase chain reaction.

Results: H&E staining of liver sections showing obviously hepatocellular necrosis, and neutrophil granulocyte infiltration in the liver in old MRL/lpr mice following BDL stress, whereas liver from young mice exhibited limited liver damage after BDL. The percentage of CD8+ and Treg was significantly decreased in old MRL/lpr receiving BDL as compared with old or young MRL/lpr. Immuno-blotting shown hepatic MnSOD protein was more decreased is associated with increased cytochrome c, Bax and caspase 3 expression in old MRL/lpr mice compared with young group following BDL stress. Hepatic superoxide dismutase (SOD) and plasma ACL levels were higher in young mice than the old ones, whereas SOD and ACL levels dramatically increasing in young and old MRL/lpr mice in response to BDL challenge.

Conclusions: Aged MRL/lpr mice and mice faced bile duct ligation-mediated liver injury correlates with increased liver apoptosis and mechanisms appear to be dependent on the presence of Treg.