**Reaction of liver cells to streptozocin-nicotinamide-induced diabetes mellitus in mice**

A.K. Shafigullina, M.S. Kaligin, M.O. Mavlikeev, O.N. Chernova, O.V. Yakovleva, A.A. Titova, A.A. Rizvanov, A.P. Kiyasov

Institute of Fundamental Medicine and Biology, KFU, Kazan, Russian Federation

One of diabetes mellitus (DM) animal models is performed by injection of streptozocin-nicotinamide (SZC-NA) – agents that via GLUT-2 transporter blockage affect glucose transport into cells. GLUT-2 is highly present on pancreatic β-cells that explain toxicity of STZ to them and application of SZN-NA to model DM. GLUT-2 is present also on hepatocytes, which participate in maintaining glucose levels and deposit it as glycogen. Damage of hepatocytes is always accompanied by activation of hepatic stellate cells (HSC) that transform into collagen-producing myofibroblasts, resulting in liver fibrosis. The aim of the research was to study reaction of liver cells to SZN-NA-induced DM in mice.

Experimental groups: 1) control mice (C57Bl/J); 2) mice with intraperitoneal injection of SZC-NA (100mg/kg). Liver paraffin sections (40 days after) were stained by Mallory's trichrome (connective tissue), PAS (glycogen content), immunohistochemically (IHC) with antibodies to CD163 (macrophages), desmin (HSC), α-SMA (myofibroblasts).

Diabetes development was proved by increase of blood sugar and decrease of insulin-secreting β-cells in pancreas. In the liver there was hydropic degeneration of hepatocytes with reduction of glycogen content, mixed polymorphonuclear-mononuclear infiltration including CD163+macrophages. IHC to desmin demonstrated reduced number of desmin+HSC in compare to control group. IHC to α-SMA showed no myofibroblasts. Features of fibrosis were excluded by Mallory's trichrome staining to connective tissue. Thus, SCZ-NA-induced DM is accompanied by damage of glycogen content in hepatocytes, inflammation with Kupffer macrophages activation. The HSC are inhibited, they don`t transform into myofibroblasts, there is no liver fibrosis development.

Work supported by Program of Competitive Growth of KFU.