

## **Transplantation of The Hepatocytes (Hepatocytes Progenitor Cell) Serum and Liver-Cell Toxic Injury**

Davit Tophuria<sup>1</sup>, Maia Matoshvili<sup>2</sup>, Irakli Topuria<sup>3</sup>, Levan Benashvili<sup>4</sup>, Nino Adamia<sup>5</sup>, Eka Kurdadze<sup>6</sup>, Kakhaber Mosidze<sup>7</sup>

Tbilisi State Medical University, Tbilisi, Georgia

Departments: Human Normal Anatomy<sup>1</sup>, Dermato-Venereology<sup>2</sup>, Topography Anatomy<sup>3</sup>, Clinical Toxicology<sup>4</sup>, Forensic Medicine<sup>5,7</sup>, National medical center<sup>6</sup>

<sup>1</sup>Supervisor MD, PhD, Associate Professor; <sup>2</sup>MD, PhD; <sup>3</sup>MD, PhD, Assistant Professor; <sup>4</sup>MD, PhD; <sup>5</sup>MD, PhD, Assistant Professor; <sup>6</sup>MD; <sup>7</sup>MD, PhD, Assistant Professor

**Background/Aims** Carbon tetrachloride is a widely used model to study mechanisms of hepatic injury it causes hepatocyte injury that is characterized by centrilobular necrosis, the molecular mechanisms of injury is partially understood. **Methodology:** 100 white Wister line rats were been selected as experimental animals. They were divided into the 3 groups. The animals of I group (n=20) have been used for modeling of acute liver failure by injection hepatocytotoxic agent CCL4 “carbon tetrachloride”. In animals of II group (n=40) animals served as hepatocyte donors (progenitor hepatocytes) for serum. III group (n=40) animals were used as control group. On the third day after liver toxic damage was starting treatment by serum which was made from progenitor hepatocytes which were on reparative regeneration activity, was injected and transplanted into abdominal cavity. Quantitative analysis of collagen in Sirius Red-stained liver sections was performed by morphometric analysis. **Results:** The performed research has shown that our method promotes reparative regeneration in toxically injured liver, and helps in organ function restoration. Micro morphological studies have shown structure and function restoration in hepatocytes organelles (mitochondria and endoplasmic reticulum), normalization of morphological and biochemical measurements. **Conclusions:** By analysis of our results we can postulate that treatment of acute liver failure with our method (isolated hepatocyte transplantation and serum) induce and stimulates reparative regeneration process in toxically damaged liver and it can be effective treatment method.

**Key words:** Progenitor, Transplantation, Liver.