

5th International Conference on

Tissue Engineering & Regenerative Medicine

September 12-14, 2016 Berlin, Germany

Regenerated liver tissues derived from human tooth treat swine liver failure induced by progressive non-alcoholic fatty liver disease

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One of the reasons to limit the liver transplantation is fewer available organs than number of the patients on the waiting list. The liver regeneration might be one of the alternatives of the transplantation. Several clinical studies with employing the transplantation of mesenchymal stem cells from blood, adipose tissue or others were reported. Transplantation of those cells might show decline of hepatic reserve function rather than treating conditions of the liver. The objective of adult stem cell transplantations might be to launch “bridge to transplant” strategy rather than treating liver condition. We have shown that human dental pulp stem cell involves potential to treat lethal liver disease. Hence, we have previously treated the biliary liver cirrhosis and acute liver injury in nude rats with transplanting the regenerated liver tissues which were originated from human dental pulp. Nonalcoholic fatty liver disease (NAFLD) has been ascertained as one of the most prevailing liver condition. Hence, the objectives of the research was to evaluate the clinical potential of our transplantation protocols using swine model of progressive liver failure developed from NAFLD. After four weeks of transplantation into six swine with the condition, secondary liver in the spleen and the regenerated liver were produced. Epithelial cells of biliary ducts were partially replaced with human cells. Serum albumin level recovered from 1.5 g/dL to over 3.0 g/dL. Other factors, i.e. HPT, choline esterase, collagen type IV, ALT etc were also improved, although any of them in the positive control has not been changed.

Biography

Yaegaki K is a Doctor of Dental Science. He has completed his PhD in Medicine from Kurume University Medical Biochemistry and Post-doctoral studies from University of British Columbia. He was trained as Oral Maxillofacial Surgeon at School of Medicine Kurume University. His specialty was facial injuries and cancer. He is the Director and Head of Oral Health at Nippon Dental University, which is the oldest dental school in Asia, also a Dean of PhD program. He has published more than 100 papers and 20 books. He has been serving as an Editorial Board Member of repute.

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