group showed higher intensity of relative HGF expression (P=0.001).

Conclusions: According to our observation, we suggest that splenectomy can increase liver regeneration in rats after hepatectomy according to the amount of liver resection, namely in 90% hepatectomy but not in 70% hepatectomy.

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Effectiveness of Intraportal Prostaglandin E1 Administration after Liver Transplantation

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Purpose: Prostaglandin (PG) E1 has been used to improve hepatic blood flow and to reduce ischemia reperfusion injury of allograft in liver transplantation. However, PGE1 undergoes extensive metabolic clearance in the pulmonary and splanchnic circulation during intravenous administration, and the concentration of PGE1 reaching the hepatic allograft is much decreased. This study analyzed the effect of intraportally administered PGE1 on hepatic blood flow and allograft function following adult liver transplantation.

Methods: Sixty living or deceased donor liver transplant recipients received continuous infusion of PGE1 (0.73 mcg/kg/hr) for 10 days immediately after reperfusion of the allograft. Of them, forty recipients received intravenously (IV group) via internal jugular vein, and the rest twenty recipients received intraportally (IP group) through the catheter in the inferior mesenteric vein. Postoperative three-week data were collected. We investigated the incidence of venous catheter related complication, change in perihepatic hemodynamics, and postoperative laboratory parameters.

Results: In IP group, chylorous ascites was observed more frequently (20% vs. 5%; p-value=0.005). During the first postoperative week, there was no difference in hepatic arterial and portal venous flow measured by Doppler sonogram between two groups (p-value=1.000). IP group exhibited a lower initial aspartate aminotransferase (AST) and alanine aminotransferase (ALT) level compared with IV group (239.4±120.9 IU/L vs. 354.6±244.0 IU/L; p-value=0.029 and 268.1±152.1 IU/L vs. 397.3±282.9 IU/L; p-value=0.012). Whereas, there was no significant difference in the change with time of these aminotransferase levels between IV and IP groups. No apparent differences were recognized in terms of serum albumin, total bilirubin, alkaline phosphatase (ALP), r-glutamyl transpeptidase (GGT) and prothrombin time (PT) level between two groups.

Conclusion: This study demonstrated that intraportal administration of PGE1 had a better cytoprotective effect against hepatocellular damage than intravenous administration, although it did not have additional benefit for perihepatic hemodynamics.

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Donor Morbidity Including Biliary Complication in Living Donor Liver Transplantation: A Single-center Analysis of 827 Cases

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Purpose: Considering straitened circumstances for deceased donor, living donor liver transplantation (LDLT) has been established as an indispensible surgical strategy to treat patient suffering end stage liver disease. The critical prerequisite to performing LDLT is maximal safety of the healthy live liver donor.

Methods: From May 1996 to June 2010, a total of 827 completed donor hepatectomy were performed in our center. Of these, 697 (84.3%) were adult LDLT. Different type of grafts were obtained: 690 right lobes, 7 extended right lobes, 1 right posterior section, 18 left lobes, 2 extended left lobes, and 108 left lateral segments. We analyzed the donor morbidity associated LDLT.

Results: There was no donor mortality. No complication was observed in 744 (90.0%) donors. But, 83 (10.0%) of donors experienced complications. Most common complication was wound infection or dehiscence with a incidence of 48 (5.8%). Biliary complication was occurred in 16 (1.9%) donors, which consisted of 10 bile leakages and 6 biliary strictures. The

rest 19 (2.3%) included 6 ileus lasting more than a week, 5 intra-abdominal abscess, 4 postoperative bleeding requiring transfusion, 3 intractable ascites, 1 ventral hernia. According to the classification of the severity of complication, the modified Clavian grade, grade I complication was recognized in 56 (67.5%) donors. Grade II, IIIa, IIIb complications was also emerged in 2 (2.4%), 15 (18.1%) and 10 (12.0%) donors, respectively. There was no grade IV or V event. Among donors with biliary complications, 5 (grade I) were treated conservatively and 1 (grade II) was cured by antibiotics without appropriate drainage. Interventional management was successful in 10 donors (grade IIIa), such as percutaneous/endoscopic biliary drainage, percutaneous peritoneal drain, and combination of balloon dilatation. Although overall complication did not have a link with any of donor characteristics, the incidence of biliary complication was correlated with donor age. As the donor age was young, the incidence of biliary complication was significant higher ($r=-0.237$, p-value=0.031<0.05).

Conclusion: This study demonstrated the safety of donor hepatectomy with less serious and easily controllable complications. Additionally, our results figured out that the incidence of biliary complication had a inverse correlation with donor age.

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Living Donor Liver Transplantation for Type II Citrullinemia in the Korean Patient

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Citrullinemia is an autosomal recessive disease caused by a deficiency of argininosuccinate synthetase.

Type II citrullinemia is clinically characterized by a sudden onset of consciousness disturbance, a high serum citrulline concentration, a slightly increased serum arginine concentration, and hyperammonemia. Although no effective treatment for type II citrullinemia have been available, liver transplantation was recently performed and proved to be effective in elimination of hyperammonemia and plasma amino acid abnormalities. Many cases of liver transplantation have been reported in the Japanese citrullinemia patient, but there is no report in the Korean citrullinemia patient. This is the first report of a Korean patient with living donor liver transplantation on citrullinemia type II. A 19-year-old male was referred to our hospital for altered mentality on April 24, 2010. He was first admitted to a hospital because of elevated aspartate aminotransferase and alanine aminotransferase on 2002. He had been healthy until 2001. At that time, urine amino acid analysis and tandem mass neonatal screening test revealed hyperammonemia and increased citrullinemia level. He was diagnosed as type II citrullinemia, and he was given a conservative treatment of sodium benzoate, arginine and a low protein diet. However, he suddenly went into a delirious state on April 23, 2010. He showed altered mentality and very high concentration of plasma ammonia and citrulline. So he referred to our hospital on April 24, 2010. We started intravenous infusion of arginine and branched amino acids, and he was given a low protein diet. A computed tomography scan revealed hepatosplenomegaly and small amount of ascites in pelvic cavity. Considering his liver and the poor prognosis with such conservative therapies, he was treated with living donor liver transplantation on June 9, 2010. The patient's whole liver was removed and part of his father's liver (the left lobe) was transplanted. Soon after surgery, the consciousness disturbance completely disappeared, accompanied by normalization of the ammonia. Over the subsequent 2-month follow-up, the patient's condition has remained fairly good.

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De novo Malignancy in Liver Transplant Recipients

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Purpose: De novo malignancy is a frequent compli-