liver transplantation.

Result: The hepatic parenchymal infarct of non-vascular origin is found routinely with liver enzyme elevation. Liver cell damage is correlated with the extent of the infracted area. Almost of the patients with non-vascular liver ischemia have good recovery, sometimes it required with plasmapheresis or long recovery period. On classification, patients on non-vascular infracted liver with central focal type and central diffuse type had bad prognosis with more advanced hepatic failure and more increased infracted area.

Conclusion: The hepatic parenchymal infarct of non-vascular origin following liver transplantation is very rare event. We can manage the patients who have peripheral focal or geographic infracted liver with conservative management, but they are sometimes required of intensive care and plasmapheresis. On otherwise, if the patients whose configuration of infracted area were cental type (focal, or diffuse), they must be care with attention because of more increasing extent of infracted area and the risk of hepatic failure.

VII-5

Prospective Clinical Trial of the Effect and Safety of Reduced Dose of Mycophenolate Mofetil with Tacrolimus Combination Immunosuppression in Living Donor Liver Transplant

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Purpose: Mycophenolate mofetil (MMF) is a powerful immunosuppressant used with calcineurin inhibitors following liver transplantation (LT). Usually, the therapeutic drug monitoring (TDM) is not recommended for MMF, which is still commonly administered at fixed doses (1 or 1.5 g daily). If the dose of MMF is lowered because of the drug toxicity, rejection in renal and heart transplant recipients is significantly increased. However, the relationship of MMF dose and post-LT rejection is obscure.

Materials and Methods: We performed a prospective clinical trial in 15 adult living donor liver transplant recipients (14 male: 1 female, median age, 58 years) at Seoul National University Hospital between October 2009 and December 2010. Their original liver disease was mainly Hepatitis B virus-related liver cirrhosis (n=13). Tacrolimus (through level: 5-8 ng/mL) and MMF (1.0 gm daily dose) were administered in all recipients. They were followed up mean 6 months (range 3 to 12 months) after LT. Plasma levels of cMPA (concentration of the active metabolite of MMF) and the area under the curve (AUC_{0-6}) at POD 7 and 14 were checked. Protocol liver biopsy was taken on around POD 10.

Results: There is no correlation between C_0 and AUC_{0-6}. The best correlation between cMPA and the AUC_{0-6} was found at C_1 and then C_2 on both POD 7 and 14 (C_1/C_2 r^2=0.896/0.839 on POD 7, C_1/C_2 r^2=0.812/0.786 on POD14, $p<0.01$ in all). Mean C_1 was 2.93/2.24 μg/mL and C_2 2.76/2.82 μg/mL on POD 7/14 each other. There is no side effect associated with the MMF or tacrolimus in all patients. In addition to, there is no acute rejection proved by protocol biopsy on around POD 10 and no graft loss.

Conclusions: In early post-transplant days, AUC_{0-6} of cMPA was strongly correlated with C_1 or C_2 rather than C_0. Although cMPA C_{0-6} and values of AUC_{0-6} were markedly low, there was no rejection or graft loss. Therefore, reduced dose of tacrolimus and MMF in combination can be attempted without post-LT rejection in living donor liver transplant recipients.

VII-6

Outcome of Alnedronate on Liver Transplantation Recipients with Osteoporosis

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Introduction: Osteoporosis is a major side-effect after liver transplantation. The purpose of this study was to evaluate the preventive effects of alendronate on the decrease of bone mineral density (BMD) and the incidence of pathologic fracture after liver trans-

plantation in Korean population.

Methods: We retrospectively collected data of 127 patients who underwent liver tansplantation from January 2006 to December 2009 in Seoul National University Hospital including preoperative and postoperative BMD data from dual-energy X-ray absorptiometry (DEXA). We classified the patients into three groups by preoperative BMD (T-score): First group with T-score under -3.0 had oral calcium (CaCO3 1,500 mg/Vitamin D 400iu) daily and oral alendronate 70mg weekly for a year (ALN group, 18 patients). Second group with T-score between -3.0 and -1.0 had oral calcium daily for a year only (CAL group, 55 patients). And the last group with T-score more than -1.0, the normal group, had no medication for the bone mineral protection (NOR group, 54 patients). We checked postoperative BMD at least one year after transplantation and pathologic fracture rates. We compared BMD change (absolute BMD and percentage) within the group and among the groups and compared fracture rates as well.

Results: There was no significant difference in gender, age, BMI, etiology, preoperative Child-Turcotte-Pugh score and liver disease duration among three groups. Although there was an increase in the lumbar spinal BMD in all groups, more significant increase was found in the ALN group (+0.10 : a change of absolute BMD, +13.28%: a change of percentage) as compared with CAL group (+0.05, +6.59%) and NOR group (+0.02, +2.96%) (p-value: 0.036 and 0.008 respectively). And it is worthy of notice that there was an increase in the BMD with alendronate use after the liver transplantation. Pathologic fracture rates after the liver transplantation in the ALN group was 16.7% (3/18) and 9.1% (5/55) in CAL group, 0% (0/54) in NOR group respectively (p-value 0.020).

Conclusion: There was an elevation of spinal bone mineral density after liver transplantation with weekly use of oral alendronate combined with daily use of oral calcium including vitamine D in the osteoporotic patients. Although there are still higher pathologic fracture rates in ALN group after liver transplantation, the pathologic fracture rates of ANL group may be not higher than those of the general osteoporotic population in fact. However, alendronate use after liver transplantation was limited to osteoporotic patients (T-score less than -3.0) in this study, a further randomized study for the candidates of liver transplantation with all range of BMD will be able to expand this result.