

after TACE, surgical resection and LT were 28.9%, 48.1% and 80.2%, respectively ($p=0.447$ at resection vs. LT, $p=0.005$ at resection vs. TACE). In patients with surgical resection, twelve patients who did not have cirrhosis showed higher 5-year disease-free and overall survival rates than those of patients who had cirrhosis (22.2% vs. 6.2%, $p=0.048$; 80.8% vs. 25.5%, $p=0.006$). Surgical resection of 24 patients who had cirrhosis did not show any survival benefit compared to that of TACE ($p=0.736$).

Conclusion: In multiple HCCs with radiologic two or three nodules, no radiologic vascular invasion and tumor diameter ≤ 5 cm, surgical resection can be justified only in patients without cirrhosis. LT showed the best oncologic outcomes in these patients.

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Outcome of Direct Local Heparinization of Liver just after Graft Procurement without Systemic Heparinization of Donor in Adult to Adult Living Donor Liver Transplantation

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Research Purpose: Despite excellent outcome of living donor liver transplantation, there are still considerable debates concerning donor safety including morbidity and mortality. We usually use the protocol of systemic heparinization of donor before ligation of vessels. However, we saw the elevation of bleeding tendency and increase of abdominal fluid collection after systemic heparinization. Therefore we introduced direct local heparinization (infusion of perfusate mixed with heparin) just after graft procurement instead of systemic heparinization.

Materials and Methods: Between February 2010 and January 2011, 97 consecutive donors underwent liver resection for living donor liver transplantation.

Among them, 47 donors (systemic heparinization group: SHEP group) were performed systemic heparinization and 50 donors (local heparinization group: LHEP group) were direct local heparinization just after graft procurement at bench. We classified patients into two groups as SHEP group and LHEP group by the protocol of heparinization. We retrospectively collected the data such as amount of Jackson-Pratt (JP) drainage, level of JP bilirubin, amount of wound hematoma, amount of abdominal fluid collection, hospital stay of donor and vascular patency of recipient including hepatic artery and portal vein by postoperative doppler ultrasound and CT scan.

Results: The donors included 66 (68%) male and 31 (32%) female with a median age of 29 years (range: 17-59). The median score of Body Mass Index (BMI) was 22.4 (range: 16.6-29.8), the median time of operation was 270 min (range: 180-420) and the median estimated blood loss (EBL) was 300 ml (median, range: 50-700). There was no significant difference in gender, age, BMI, hospital stay, operative time, estimated blood loss (EBL) except abdominal fluid amount, pulmonary effusion amount, left remnant volume(%) of donor and level of total bilirubin in JP at postoperative 5th day between SHEP group and LHEP group. There was no thrombosis or obstruction in the hepatic artery and portal vein after anastomosis in the recipient operation, although there are some cases with stenosis at anastomotic site. One donor of SHEP group was readmitted for management for pneumonia and another donor of the same group underwent reoperation for bleeding control just after the end of hepatectomy and wound closure.

Conclusions: The protocol of systemic heparinization just before vascular ligation is used usually in liver transplantation nowadays. However, systemic heparinization can increase the incidence of minor bile leakage, abdominal fluid collection and pleural fluid more than the method of the direct infusion of perfusate mixed with heparin in this study. And postoperative bleeding and infection can be occurred due to elevation of bleeding tendency, abdominal fluid and pleural fluid. Direct local heparinization of donor graft at bench is as feasible as systemic heparinization.