Supplementary information on diagnostic evaluation

All patients with a suspicion of primary liver cancer were evaluated by clinical, laboratory and imaging studies including a 4-phase computerized tomography (CT) scan **or** dynamic contrast enhanced magnetic resonance imaging (MRI). The diagnosis was made if there were radiologic hallmarks of HCC as arterial hypervascularity and venous/late phase wash out. In the absence of radiologic hallmarks of HCC or if findings were inconsistent on contrast enhanced CT or MRI, a biopsy was obtained and assessed by an expert hepatopathologist. Extrahepatic metastasis was screened by a contrast-enhanced chest CT and whole-body bone scan.

All patients with a diagnosis of HCC had baseline physical examination, and results of standard laboratory investigations including complete blood count, renal and liver function tests, screening tests for hepatitis viruses (hepatitis B surface antigen-HBsAg, hepatitis B core antibody-anti-HBc total and hepatitis C antibody-anti-HCV) and AFP. If HBsAg or anti-HCV was detected to be positive further tests [HBeAg, anti-HBe, HBVDNA (PCR), and anti-Delta total (plus HDVRNA when positive) or HCVRNA, respectively] were obtained. Most patients with HCC already had a diagnosis of a chronic liver disease, and remaining patients with unrecognized liver disease had undergone detailed evaluations to assess the presence of other etiologies including alcoholic liver disease, hemochromatosis, Budd-Chiari syndrome, non-alcoholic fatty liver disease, and autoimmune liver diseases. An upper gastrointestinal endoscopy was performed to evaluate the presence of esophageal or gastric varices in each patient.

Supplementary information on treatment

Curative partial hepatectomy was performed in patients with tumors confined to one lobe of the liver that shows no radiographic evidence of invasion of the hepatic vasculature, no evidence of portal hypertension and adequate liver functional reserve. All candidates for surgical resection underwent indocyanine green test to determine operative risk before hepatectomy. Percutaneous ablation was selected in patients who did not meet resectability criteria and had a single tumor $\leq$3 cm in diameter. Patients without a suitable living-donor were listed for OLT. Listed patients who had an anticipated time to OLT more than 6 months underwent percutaneous ablation, TACE or Yttrium-90 radioembolization decided by physician's discretion according to tumor characteristics and hepatic reserve. Patients with advanced stage HCC who were not candidates

for curative treatments underwent TACE, Yttrium-90 radioembolization or sorafenib therapy. In terminal stage, patients were followed-up under natural course with best supportive care.

Twenty-seven patients were suitable for hepatic resection and underwent surgery. Twelve patients who had 1 or 2 small (≤3cm) nodules underwent percutaneous ablation with RFA, and 5 patients with a single nodule ≤2cm underwent percutaneous acetic acid/ethanol injection. Two-hundred and sixty-seven patients who were ineligible for surgical resection or percutaneous ablation, but had tumor characteristics that are compatible with expanded criteria were listed for OLT. A total of 56 patients (47 within expanded criteria) with HCC underwent OLT during the follow-up period, due to the shortage of cadaveric organs or unavailability of a suitable living donor. The number of patients who underwent TACE was 172. Among them 90 patients underwent 1 session, 53 patients underwent 2 sessions, and 29 patients underwent ≥3 sessions of TACE. The distribution of treatment modalities in the remaining patients were as follows: 19 patients underwent Yttrium-90 radioembolization, 16 patients received systemic therapy with sorafenib, and 238 patients received no treatment until the end of the follow-up. Treatment characteristics of patients with HCC were summarized in Supplementary Table 1.