bleeding (n = 1), and emergent TACE for ruptured HCC (n = 1). In BCLC B stage, major complications developed in two patients (1 liver abscess and 1 septicemia in a patient with biliary invasion). In BCLC C stage, major complications developed in 29 patients (deterioration of liver function, hepatic encephalopathy, liver abscess, septicemia, biliary injury, disabling pleural effusion, variceal bleeding, spontaneous bacterial peritonitis, and acute kidney injury as alone or in various combinations) with 1-month mortality in one patient. The prevalence of major complication in BCLC C stage was largely affected by the extent of portal vein thrombosis (segmental:sectional:lobar:bilateral or main = 0.0%:5.0%:11.8%:25.0%). **Conclusion:** cTACE for HCC can be safely performed in the early and intermediate stage or in advanced HCC with limited portal tumor thrombosis.

OR3.4

Percutaneous Transpapillary Placement of Biliary Metallic Stent in Patients with Malignant Extrahepatic Biliary Obstruction: Outcomes of Double-Bare Stent versus Polytetrafluoroethylene-Covered Stent

Dong Il Gwon, Ibrahim Alrashidi, Joonho Hur, Hee Ho Chu, Chan Park, Jin Young Kim, Minho Park, Jong Woo Kim, Jin Hyoung Kim

Asan Medical Center, Seoul, South Korea.
E-mail: Dr.ialrashidi@gmail.com

Objectives: To investigate the outcomes of percutaneous transpapillary placement of biliary metallic stent in patients with malignant extrahepatic biliary obstruction and to compare the outcomes of the uncovered double-bare stent and polytetrafluoroethylene (PTFE)-covered stent. **Methods:** From April 2015 to December 2018, 83 patients (50 men, 33 women; mean age, 64.3 years; age range, 36–89 years) with malignant extrahepatic biliary obstruction were enrolled in this retrospectively study. All patients underwent percutaneous transpapillary stent placement: uncovered double-bare stent placement in 40 patients and PTFE-covered stent placement in 43 patients. **Results:** There were no significant differences in technical success (P > 0.999), successful internal drainage (P = 0.473), complications (P = 0.217), patient survival (P = 0.107), and stent patency (P = 0.103) and between the two groups. Overall patient survival times were 90 days (95% confidence interval [CI], 30–150 days) in double-bare stent group and 219 days (95% CI, 99–339 days) in covered stent group, respectively. Stent occlusion occurred in seven patients (20%) at a mean of 114 days in double-bare stent group (food reflux with sludge [n = 5] and tumor ingrowth [n = 2]) and in 16 patients (41%) at a mean of 170 days in covered stent group (food reflux with sludge [n = 8], tumor overgrowth [n = 5], stent migration [n = 1], blood clot [n = 1], and stent collapse due to subsequent duodenal stenting [n = 1]) (P = 0.153). Median stent patency times were 74 days (95% CI, 47–101 days) in double-bare stent group and 135 days (95% CI, 55–139 days) in covered stent group, respectively. **Conclusion:** Percutaneous transpapillary placement of the biliary metallic stent seems to be effective and safe in patients with malignant extrahepatic biliary obstruction. Stent type may not significantly affect technical and clinical outcomes.

OR3.5

Transarterial Therapy of Liver Tumors with Extrahepatic Blood Supply by Renal Artery and Its Branches

Khalid Ahmed Almasar, Reema Alrashed, Yousof Al-Zahrani, Mohammad Arabi

National Guard Hospital, King Abdulaziz Medical City, Riyadh, Saudi Arabia.
E-mail: dr.almasar@hotmail.com

Objectives: To evaluate the prevalence and survival of patients with hepatocellular carcinoma supplied by the renal artery and its branches who underwent transarterial therapy. **Methods:** This was a retrospective review in patients with liver tumors with extrahepatic supply from renal artery and its branches who underwent transarterial therapy in National Guard Hospital between 2009 and 2017. Number of lesions treated, tumor size, type of renal arterial branch, mode of treatment, and overall survival were all evaluated. **Results:** During this period, renal arterial supply to liver tumors was identified in 15 patients (9 males and 6 females). Their age ranged from 55 to 78 years. Of the 15 patients, 11 patients were treated with transarterial embolization (73.3%), 2 patients received transarterial chemoembolization (13.3%), and radioembolization through renal arterial supply was performed in 2 patients (13.3%). Thirty-three lesions were treated. The mean tumor size was 8.2 cm (range 2.5–17.5). All patients had cirrhosis. Fourteen patients had hepatocellular carcinoma (93.3%) while one patient had a neuroendocrine tumor (6.7%). A branch from the right renal artery was seen in 8 patients (53.3%); inferior phrenic arising from the renal artery was identified in 5 patients (33.3%); the capsular branch of right renal artery was the supplying branch in 2 patients (13.3%). The overall survival of these patients ranges between 1 and 79 months, with median survival of 23.7 months. **Conclusion:** Transarterial therapy of liver tumors with extrahepatic supply via renal artery and its branches is feasible and safe.

OR3.6

Portal Vein Embolization with Ethylene Vinyl Alcohol Copolymer for Contralateral Lobe Hypertrophy before Liver Resection: Safety, Feasibility, and Initial Experience

Romaric Loffroy, Charles Mastier[1], Nicolas Falvo, Frank Pilleul[1], Olivier Facy, Marco Midulla, Olivier Chevallier

François-Mitterrand University Hospital, Dijon, [1]Leon Berard Cancer Center, Lyon, France.
E-mail: romaric.loffroy@chu-dijon.fr

Objectives: To report the preliminary experience with preoperative portal vein embolization (PVE) using ethylene vinyl alcohol (EVOH) copolymer liquid embolic agent. **Methods:** Patients with right-sided liver malignancies scheduled for extensive surgery and receiving induction of liver hypertrophy via right PVE with EVOH copolymer as the only embolic agent between 2014 and 2018 in two academic centers were retrospectively evaluated. Liver segments S2/3 were used to assess hypertrophy. Technical success rate, percentage of future liver remnant (FLR) increase, degree of hypertrophy of FLR, kinetic growth rate (KGR),

complications, and resection rate were assessed. Degree of hypertrophy of the FLR and KGR were assessed by computed tomography (CT) volumetry performed before and 3–6 weeks after PVE. **Results:** Twenty-six patients (male, 17; mean age, 58.7 years, range 32–79) submitted to PVE with EVOH copolymer before major right hepatectomy for primary or secondary hepatic malignancies were retrospectively analyzed. Ten patients presented an underlying hepatopathy. Technical success was achieved in 100%. All targeted portal branches were successfully embolized. There were no cases with nontarget embolization by EVOH. The percentage of FLR increase was 52.9% ± 32.5%. The degree of hypertrophy of the FLR was 16.7% ± 6.8%. The KGR was 4.4% ± 2.0% per week. PVE produced adequate FLR hypertrophy in all patients. The resection rate was 84.5%. Four minor complications following PVE (2 low-grade fever and 2 abdominal discomforts) were reported, successfully managed with symptomatic treatment. One death during surgery time occurred, unrelated to PVE. **Conclusion:** Preoperative PVE with EVOH copolymer is feasible, safe, and effective to induce hypertrophy of the FLR. EVOH copolymer could be another embolic option for PVE.

OR3.7

Selective Vesical Arteries Embolization in the Management of Lower Urinary Tract Hemorrhage on Top of Inoperable Urinary Bladder Tumors

Noha Abdulrahman, Karim Ahmed Abd El Tawab, Rana Tarek Khafagy, Noran Abdulrahman, Mark Michael, Ahmed Zahran, Hend Gamal Abdelgalil

Ain Shams University, Cairo, Egypt.
E-mail: noha.21493@gmail.com

Objectives: Lower urinary tract hemorrhage is relatively rare compared to renal causes all over the world and in Egypt as well. Causes are diverse most important causes are urinary bladder (UB) tumors, especially post-irradiation therapy, trauma, and very rarely prostatic tumors. Vesical arteries embolization can be very effective if local measures failed to stop bleeding. **Methods:** In the period between January 2015 and October 2019, 18 patients consisting of 16 males and 2 females (mean age 63 years) with known inoperable UB malignancy presenting with cross hematuria underwent transarterial embolization in Ain Shams University Hospitals after failure to achieve hemostasis after conservative and local treatments. Clinical success was defined as stabilization of vital data of the patient and obviation cystectomy. Polyvinyl alcohol (PVA) particles 300–500 μ were used as embolic agents in all the patients. **Results:** Bleeder could be identified angiographically in six patients only. In 12 patients, no definite bleeder could be identified, so bilateral vesical embolization was done empirically. Clinical success rate was 72% (13 patients, including the six patients with angiographically identified bleeder). Surgical palliative cystectomy was needed in three patients after rebleeding postembolization. No major procedural-related complications were recorded. **Conclusion:** In our limited number of cases, transcatheter embolization is a feasible treatment option in the management of hematuria due to UB malignancy with low rates of complications. Angiographic identification of the bleeding source was associated with higher clinical success rates.

OR3.8

Intra-Arterial ^{177}Lu-Dotatate Therapy in Patients with Metastatic Neuroendocrine Tumors in Liver-Dominant Disease Feasibility and Safety Profile

Sumati Sundaraiya, Arvind Rajan, Mohnish Palaniswamy, M. C. Uthappa, K. Venugopal, Ramprabhu

Gleneagles Global Health City, Chennai, Tamil Nadu, India.
E-mail: drmohnishp@gmail.com

Objectives: The aim of the study was to assess the feasibility, safety, tolerability, and efficacy of intra-arterial (IA) infusion of ^{177}Lu-DOTATATE in patients with well-differentiated liver-dominant metastatic neuroendocrine tumor (NET). **Methods:** Four patients with well-differentiated grade II liver-dominant neuroendocrine metastasis (Ki67 index ≤20%) were included in this study with ^{68}Ga-DOTANOC avid liver metastasis with or without extrahepatic disease. Each patient underwent IA administration of 7.4 GBq ^{177}Lu-DOTATATE through selective hepatic arterial catheterization, along with amino acid infusions over 4–6 h at intervals of 8–12 weeks, with a total of 12 cycles (two patients received four cycles of IA infusion, third received only two cycles of IA infusion, and the last one received two cycles IV followed by two IA cycles). All patients received 30 mg long-acting octreotide on day 5 of ^{177}Lu-DOTATATE therapy. Follow-up imaging with ^{68}Ga-DOTANOC PET/CT whole-body scan was done after 8 weeks of completion of the second and fourth cycles of ^{177}Lu-DOTATATE, respectively, and compared with baseline imaging to determine the response to treatment. Complete blood counts, including platelet counts, were monitored on a weekly basis until they reached nadir levels. The clinical response, safety and toxicity profiles, as well as tumor markers were assessed pre- and post-treatment, with a time frame of up to 3 months after the last treatment. **Results:** All patients tolerated the IA infusion of ^{177}Lu-DOTATATE therapy well, with none experiencing any significant procedure-related acute side effects. None of the patients developed acute radiation-induced liver disease or renal toxicity. Only one patient developed grade 1–2 hematological toxicity. Remaining others were stable with none developing severe grade 3 or 4 hematological toxicity. Only one patient developed transient increase of hepatic enzymes, which normalized subsequently with no decrease in the total bilirubin levels. None of them showed compromise in their quality of life, with a definite improvement in one of them. Two patients showed partial response to therapy according to the RECIST criteria, and patients showed stable disease. None of them had disease progression. All four patients reported significant improvement in symptoms and sense of well-being after treatment initiation. Concordant decrease in the serum chromogranin A levels was seen in two patients. Although there was rise in the serum chromogranin A in one patient, he showed good partial radiological response and was asymptomatic, clinically well with no deterioration in his performance status. **Conclusion:** Our initial experience of IA administration of ^{177}Lu-DOTATATE therapy in patients with liver-dominant metastases is promising, feasible, safe, and tolerable. The preliminary therapeutic potential of this therapy is encouraging. However, further prospective studies are needed to show its impact in improving clinical outcomes, median survival, and progression-free survival.