Barcelona, Spain
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# CIRSE 2019

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Cardiovascular and Interventional Radiological Society of Europe

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## PART 1

**Abstracts of**
**Controversy Sessions**
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On site cytological and final pathology report for each station. Mediastinoscopy/ surgical specimen histopathology report correlation. Final plan of management, and any change due to EBUS evaluation.
**Results:** EBUS-TBNA was performed on 77 patients for mediastinal staging: 47 male and 30 female, average age 62.1 years (extremes 39-81). In 51% of patients (39/77) mediastinal lymph node metastasis were found and mediastinoscopy could be avoided. Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy were 91%, 100%, 100%, 80% and 93% respectively. Complication rate was less than 2%.
**Conclusion:** Mediastinoscopy can be avoided in more that 50% of lung cancer patients when EBUS-TBNA is used as staging modality for mediastinal staging, leading to a significant reduction of health care costs.

## P-527

### Capembol: Safety, feasibility and early oncological outcomes of prostatic artery embolization as a focal therapy in the management of low grade localized prostate cancer in patients candidate to active surveillance. A monocentric pilot study. Preliminary results

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**Purpose:** We aim to assess the feasibility, safety, short-term oncologic and functional outcomes of unilateral prostate artery embolization (PAE) in patients with localized low-risk prostate cancer candidate to active surveillance (AS).
**Material and methods:** This first-results prospective monocentric pilot study enrolled patients with unilateral prostate cancer Gleason 6 (3+3), prostate specific antigen < 10ng/ml, stage < T2b clinical or < T2c radiological and concordant PIRADS ≥ 3 target lesion on multiparametric MRI (mpMRI). Primary endpoint was the feasibility defined by technical success of PAE and absence of severe adverse effects. Secondary endpoints were overall survival, need for radical treatment, necrosis of the treated lobe on mpMRI, histological, urinary and erectile functions evaluations after PAE.
**Results:** Six patients were included in the study from June 2018 to January 2019. Median age was 74,5 years, median initial prostatic specific antigen (PSA) rate was 6,9 ng/ml (3,2-10,14), all cancers were Gleason 6 (3+3) and T2a clinical. All lesions ranked PIRADS 4 on mpMRI. Technical success was 100%. Median procedure time was 40,5 minutes (35 – 48). No major complication occurred (Clavien-Dindo ≥ 3). No decrease in urinary and erectile functions was observed in the first four patients at 3-month follow-up. In one of the two patients followed 6 months, the target lesion was no longer visible on mpMRI and was negative on the targeted biopsy.
**Conclusion:** Unilateral PAE to manage localized low-risk prostate cancer is a feasible and well tolerated procedure. First early oncological results are promising. Further research are required to demonstrate its long-term oncologic and functional outcomes.

## P-528

### Performance of the Emprint and Amica microwave system in ex-vivo porcine livers: sphericity and reproducibility versus size

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**Purpose:** To evaluate two different microwave ablation (MWA) systems on tumor ablation shape and size in excised porcine livers.
**Material and methods:** In 25 porcine ex-vivo livers, two MWA systems (14G Amica (HS Health Service) and 11G Emprint (Medtronic)) were used to perform ablations at identical settings: 3 and 5 minutes at 60 and 80 Watt, each (six ablations per setting). MRI was acquired using 3D T1-weighted images on a 7T Philips Achieva for the evaluation of ablation volume and shape, using post-processing software (Vitrea, Vital Images inc). Ablation shapes were quantitatively evaluated for sphericity and qualitatively for symmetry. Obtained diameters of short and long axes were compared to the reference diameters as stated by the manufacturers.
**Results:** Emprint ablations resulted in lower ablation volumes at each setting with higher reproducibility (median 11,08 mL (6,07-21,53, SD: 2,34), versus 21,05 mL (9,39-44,69, SD: 6,30) for Amica ablations (p<0,01). The average sphericity index of Emprint ablations was significantly higher (0.89 ± 0,07 versus 0.54 ± 0,08). In Emprint ablations, the ablation duration significantly influenced the sphericity index (p=0.023), whereas in Amica ablations, no significant relationship between ablation duration and sphericity was found (p>0.05). Asymmetric ablations were found in 50% of Amica ablations, versus 4,2% in Emprint ablations (p=0,001). Amica ablations overlapped the reference ablation diameters in 37.5% of cases, whereas this was 87.5% for Emprint.
**Conclusion:** In this ex-vivo experimental setup, Emprint ablations are smaller, but more spherical and reproducible. Also, they meet the manufacturer reference diameters more often than Amica.

## P-529

### Effectiveness of trans-catheter arterial embolization for hemorrhage from pancreatic cancer

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**Purpose:** To evaluate effectiveness and safety of trans-catheter arterial embolization (TAE) for hemorrhage caused by pancreatic cancer.
**Material and methods:** Between January 2010 and December 2018, 11 patients (6 men and 5 women, mean 59 years old) underwent TAE for hemorrhage caused by pancreatic cancer invasion. Patients with postoperative hemorrhage were excluded. The site of bleeding was the duodenum in 5 patients, bile duct in 4 patients, stomach in 2 patients. Angiography demonstrated pseudoaneurysm in 8 patients, contrast medium extravasation in 3 patients, and neither of them in 2 patients. Technical success was defined as successful cessation of extravasation, disappearance of pseudoaneurysm, or stop of blood supply to the feeding arteries of the tumor. Clinical success was defined as bleeding-free survival for 1 month after TAE. Safety of TAE was evaluated using Clavien-Dindo classification.
**Results:** Technical success was obtained in 11/11 (100%). Embolized arteries included the pancreatic head arcade (anterior and posterior superior pancreaticoduodenal arteries, inferior pancreaticoduodenal artery), 5; arteries of the stomach (right and left gastric arteries, right gastroepiploic artery), 3; hepatic arteries (proper and common hepatic arteries), 2; jejunal arteries, 2; the splenic artery, 1. Coils were used in 6 patients, NBCA in 4 patients, gelatin particle in 3 patients. Clinical success was achieved in 8/11 (73%). One patient died due to liver failure (grade V) and one patient had transient increase of amylase (grade I).
**Conclusion:** TAE might be an effective and safe treatment for hemorrhage caused by pancreatic cancer.

## P-530

### Safety and effectiveness of percutaneous laser ablation of liver metastases from neuroendocrine neoplasm - a retrospective study

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**Purpose:** To retrospectively assess safety and efficacy of percutaneous laser ablation (LA) of multiple liver metastases (LM) from neuroendocrine neoplasm (NEN)

**Material and methods:** Twenty-one patients with at least 3 small LM (< 4 cm in diameter) from NEN underwent ultrasonography-guided LA. Up to seven LM were ablated in a single session; if the number of LM exceeded seven, the remaining LM were ablated in further LA sessions with a time interval of three-four weeks each other. LA was performed according to the multifiber technique. The patients underwent contrast-enhanced CT one month after LA, and were subsequently monitored every three months for the first two years, then every six months.
**Results:** On the whole, 189 LM were treated (mean per patient 9 ± 8.2, median 6) in 41 LA sessions (range 1-5). One grade 4 complication was observed (0.53%): a bowel perforation successfully managed by surgery. Technical efficacy was 100%, primary efficacy rate 94.7%, and secondary efficacy rate 100%. Complete relief of hormone-related symptoms was obtained in all the 13 symptomatic patients. The median follow-up was 39 months (range 10 – 93). 1-, 2-, 3-, and 5-year survival rates were 95%, 86%, 66%, and 40%, respectively. Overall survival resulted significantly higher for patients with Ki-67 expression ≤7% than for those with Ki-67 >7% (p= 0,0347).
**Conclusion:** LA is a promising and safe technique to treat LM from NEN. Further prospective studies involving larger series of patients followed for a longer time are strongly needed to provide definitive information on the long-term efficacy of this liver-directed therapy.

## P-531

### Temporary nerve block reduces pain and the requirement for IV medication induced conscious sedation during thermal ablation of hepatic tumors

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**Purpose:** To assess whether a temporary nerve block performed immediately prior to thermal ablation of hepatic tumors reduces the need for IV medication induced conscious sedation.
**Material and methods:** Retrospective study performed between September 2015 and July 2017 looking at all patients who underwent a hepatic tumour thermal ablation under conscious sedation who received either a celiac plexus or a hepatic hilar nerve block. Equal number of patients who underwent a hepatic ablation without nerve block were randomly chosen during the same time period, matching for sex and tumour type. Patients with incomplete files or those who underwent a simultaneous trans-arterial chemoembolization were excluded.
**Results:** 32 patients fit the inclusion criteria, 16 received a nerve block and 16 did not. The average age, BMI, tumour type, tumour size, procedure time, ablation time, distance from tumor and distance from tumour to hilum were similar between the groups. Patients who received a nerve block had lower requirement for IV Fentanyl (115.6 ± 53.9mcg vs 240.6 ± 71.2mcg, p=0.000004) and IV Midazolam (1.59mg ± 0.55 vs 2.94mg ± 1.33, p=0.0008), as well as diminished visual analog pain scores (2.9/10 ± 2.1 vs 5.9/10 ± 2.6, p=0.002). No major complications occurred in the nerve block group, whereas 2 patients had clinically significant respiratory depression in the control group.
**Conclusion:** Within the limits of this retrospective study, our data suggests that celiac plexus and hepatic hilar nerve blocks are safe and can reduce pain and the requirement for IV medication induced conscious sedation during thermal ablation of liver tumours.

## P-532

### The role of sarcopenia in patients with intrahepatic cholangiocarcinoma after TACE and SIRT

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**Purpose:** Sarcopenia has been proposed as a prognostic parameter for patients with intrahepatic cholangiocarcinoma (ICC). The aim of this study was to investigate the role of sarcopenia in patients with ICC undergoing TACE or SIRT.
**Material and methods:** Between 1997 and 2018, 417 patients with ICC were referred to our tertiary care center. A total of 45 patients received TACE or SIRT and could be included in this study. These were compared to 198 patients undergoing liver resection. Psoas muscle index (PMI) served as an easy-to-measure marker of sarcopenia. Cut-off values for PMI regarding overall survival (OS) prediction were calculated using sex-specific optimal stratification and were compared to indicators of tumor burden: number and size of intrahepatic tumor(s), translobar spread, and tumor volume.
**Results:** While optimal stratification yielded PMI cut-offs that led to significantly shorter OS in the subgroup undergoing liver resection (cut-offs 5.74cm$^2$/m$^2$ in men and 5.19cm$^2$/m$^2$ in women, log-rank p=0.002, median OS 20.4 months vs 30.2 months), no significant cut-off values for PMI could be calculated for the subgroup undergoing TACE/SIRT (best log-rank p=0.15, cut-offs 5.00cm$^2$/m$^2$ in men and 3.45cm$^2$/m$^2$ in women, median OS 9.4 months vs 15.0 months). Tumor burden was significantly higher in the TACE/SIRT subgroup in all categories: multifocality in 62% vs 22% (p<0.001), mean sum of intrahepatic lesions 14.6cm vs 8.2cm (p<0.001), translobar spread (50% vs 8%, p<0.001), and tumor volume (0%-25%/25%-50%/>50% in 19/16/10 vs 164/32/2, p<0.001).
**Conclusion:** In contrast to patients undergoing liver resection, sarcopenia was not predictive in patients with ICC undergoing TACE/SIRT. This finding is most likely due to higher tumor burden in the TACE/SIRT collective in combination with the aggressiveness of this tumor entity, resulting in poor survival regardless of PMI.

## P-533

### Influence of correct needle placement on ablation success of irreversible electroporation

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**Purpose:** To evaluate the impact of needle geometry in irreversible electroporation (IRE) of hepatocellular carcinoma (HCC) on ablation success.
**Material and methods:** Retrospective analysis of 15 patients with incomplete ablation after IRE of HCC in a tertiary care hospital (NanoKnife, angiodynamics) from 2013 to 2018. For comparison 30 patients with technical successful ablation after IRE were matched. Needle geometry was evaluated in each patient by measuring several parameters such as tumor-center-to-ablation-center distance (TACD), tumor-to-needle distance (TND), needle divergence (NDiv) or needle depth (NDep). To improve needle placement 10 of these IREs were performed under assistance of a stereotactic navigation system (Cas-one IR, Cascination). Technical success was defined as complete ablation and absence of local recurrence in the first follow-up MRI scan after 6 weeks.
**Results:** Statistical analysis revealed that the average NDiv (3,7° vs 7,0°, p=0,02), the TACD (3,2 vs 11,6mm, p<0,001), the average TND (1,9 vs 4,7mm,