The EFSUMB-sponsored Euroson School-International Course
“Update on Abdominal Contrast Enhanced Ultrasound on CEUS” was successfully held in Barcelona on June 12-14th, 2014.
We would like to thank again EFSUMB for the sponsorship you provided to us, and we take the occasion to enclose our final report.

Faculty
As you will see in the final programme attached to this report, the course faculty was eventually composed by 10 Spanish speakers (2 of them were responsible of clinical cases presentations), 8 speakers from other European countries and 2 speakers from Canada. We believe is of interest to EFSUMB to note that gender was extremely well balanced within the faculty, being 10 speakers men, and 10 women. We know that this is not the case in most courses/congresses, and we would like to remark that speakers were selected only according to their scientific profile and gender balance was not forced; hence, we feel this result should be taken as a confirmation that women physicians and scientists are increasingly involved with success in the ultrasound/CEUS field.

Attendance
The course was very successful in terms of attendance, and counted with 81 registered participants, which exceeded our initial expectations (foreseen: 65). As expected, audience was predominantly Spanish (71 attendants); however, we received 7 participants from other countries of Europe (1 from Germany, 1 from Belgium, 1 from Norway, 3 from Rumania, 1 from Sweden) and 3 from outside Europe (1 from USA, 1 from Uruguay and 1 from Canada). We believe that on-site simultaneous translation was important for the success of the course, since we observed that it has been used by at least 30% of attendants.
Most paying participants were sponsored by pharmaceutical companies to attend the course (75%; all but 3 supported by Rovi, company commercializing SonoVue in Spain); 21% were supported by their work-center, and 19% did not receive any support.

Course evaluation from the audience

Overall, the rating of the course was excellent: 4.42/5 for the general interest of the topic, 4.15/5 fulfilment of participants’ expectations, and 4.27/5 for organizational aspects. Rating of the different talks was also very high (median 4.23/5). The three talks about basic aspects of CEUS technique were rated slightly lower (3.78/5); we think that this is probably due to the fact that physicians are less used to hear about these aspects and it should not be considered related to the quality of the given lectures.

You will find more details regarding each lecture rating in the material attached to this report.

Among the few written comments that we received, most were of appreciation; only two comments suggested to reduce the bulk of the lectures on the second day which was felt as excessive.

Learning assessment

Two copies of a multiple choice test composed of 15 questions regarding the course content (please, see the enclosed copy) were given to all the participants. Attendants were invited to fill-in the pre-course copy on the first day and the post-test copy on the last day of the course.

Overall, 53% correct answers were given in the pre-course test; however, the percentage of correct answers much differed among the different subjects being >70% for the questions regarding CEUS diagnosis of pyelonefritis, cholecistitis, and primary tumours of the pancreas, and <40% for CEUS for liver fibrosis and portal hypertension, vascular liver diseases assessment, quantification of perfusion in solid neoplasias, endovascular aortic aneurysm repair assessment and trauma assessment. This clearly points out that these subjects should be addressed again in future courses.

Post-course test showed that overall knowledge of CEUS was favourably impacted by the course (average percentage of correct answers: 68% vs. 53%).

Financial report

We are attaching to this report a detailed budget.
The total income of the course was slightly above the expected (51.150 € vs. 48.000 € initially foreseen), mainly thanks to sponsorships; this was counterbalanced by an increase of the total expenses, which also amounted to approximately 51.150 €, due partially to a number of participants higher than expected and partially to higher than expected logistics expenses. The net result is therefore parity.

We hope you might find the information enclosed of interest for future Euroson Schools. Please feel free to contact us for any additional information you might need.

Warmest regards,

The course organizers,

Concepció Bru, MD  
Rosa Gilabert, MD  
Annalisa Berzigotti, MD  
Hospital Clinic, University of Barcelona  
Spain
UPDATE ON ABDOMINAL CONTRAST ENHANCED ULTRASOUND

12th - 14th June
HOSPITAL CLINIC

2014 · BARCELONA

www.geyseco.es/ceusbcn2014
UPDATE ON ABDOMINAL CONTRAST-ENHANCED ULTRASOUND

Euroson School-International Course
12th – 14th June - HOSPITAL CLÍNIC 2014 · BARCELONA

Under the auspices of
ESFUMB

ORGANIZED BY

Director Concepción Bru, M.D.
Hospital Clinic. Barcelona

Annalisa Berzigotti, M.D.
Hospital Clinic. Barcelona

Rosa Gilabert, M.D.
Hospital Clinic. Barcelona
UPDATE ON ABDOMINAL CONTRAST-ENHANCED ULTRASOUND

12th –14th June · HOSPITAL CLÍNIC · 2014 · BARCELONA

SPEAKERS

Annalisa Berzigotti
Hepatic Hemodynamic Laboratory, Liver Unit
Hospital Clínic i Provincial, Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd),
University of Barcelona. Barcelona, Spain

Luis Bianchi
Department of Radiology, CDIC
Associated Professor University of Barcelona
Hospital Clínic i Provincial, University of Barcelona
Barcelona, Spain

Concepció Bru
Department of Radiology, CDIC
Professor University of Barcelona
Hospital Clínic i Provincial, University of Barcelona
Barcelona, Spain

Peter Burns
Professor and Chair Department of Medical Biophysics
University of Toronto. Toronto (ON), Canada

Jean Michel Correas
Professor of Radiology
Department of Adult Radiology Descartes University & Necker
University Hospital. Paris, France

Carmina Duran
Department of Radiology, UDIAT
Centre Diagnòstic, Institut Universitari Parc Taulí-UAB
Sabadell, Barcelona, Spain

Mirko D’Onofrio
Assistant Professor of Radiology, Department of Radiology
Policlinico G.B. Rossi, University of Verona. Verona, Italy

Ángeles García Criado
Department of Radiology, CDIC
Hospital Clínico Provincial, University of Barcelona
Barcelona, Spain

Rosa Gilabert
Department of Radiology, CDIC
Hospital Clínic i Provincial, University of Barcelona
Barcelona, Spain

Hyun-Jung Jang
Department of Medical Imaging, University of Toronto
Toronto General Hospital. Toronto (ON), Canada

Natalie Lassau
Head of Ultrasound Service, Department of Imaging, and
Scientific Director of the Small Animals Laboratory (LIPA)
Villejuif Cedex, France

Maria Franca Meloni
Radiology Department, Interventional Ultrasound
Ospedale Valduce, Como (Italy)

Carlos Nicolau
Department of Radiology, CDIC
Hospital Clínico Provincial, University of Barcelona
Barcelona, Spain

Isabel Nuñez
Department of Radiology, CDIC
Hospital Clínico Provincial, University of Barcelona
Barcelona, Spain

Fabio Piscaglia
Assistant Professor of Internal Medicine and Head of the
Center for Ultrasound in Internal Medicine at the University of
Bologna. Divisione di Medicina Interna – Bolondi, Dipartimen-
to Universitario di Scienze Mediche e Chirurgiche, Azienda
Ospedaliero Universitaria S.Orsola-Malpighi
Bologna, Italy

Tomas Ripollés Gonzalez
Department of Radiology
Hospital Universitario Dr. Peset
Valencia, Spain

Carla Serra
Head of Interventional Ultrasound Unit
Dipartimento ad attività integrata Malattie Apparato Digerente e Medicina Interna
Azienda Ospedaliero Universitaria S.Orsola-Malpighi
Bologna, Italy

Eleanor Stride
Reader in Biomedical Engineering
Institute of Biomedical Engineering, University of Oxford
Oxford, U.K

François Tranquart
Director Bracco Suisse, S.A. Geneva, Switzerland

Ramón Vilana
Department of Radiology, CDIC
Hospital Clínico Provincial, University of Barcelona
Barcelona, Spain
**SCIENTIFIC PROGRAMME**

### THURSDAY, JUNE 12th 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>12.00-14.30</td>
<td>Registration</td>
</tr>
</tbody>
</table>
| 14.30-14.45 | Welcome and opening by Dr. Luis Donoso Director of Diagnosis Imaging Center  
Hospital Clinic i Provincial University of Barcelona and by the course organizers:  
Prof. Concepción Bru, Dr. Annalisa Berzigotti, Dr. Rosa Gilabert (Spain) |

**MICROBUBBLES: PHYSICAL PRINCIPLES, SAFETY AND NOVEL APPLICATIONS IN ULTRASONOGRAPHY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
</table>
| 15.00-16.00 | Magistral lecture Microbubbles: past and future  
Prof. Peter Burns (Canada) |
| 16.00-16.30 | CEUS safety, terminology and reporting: EFSUMB recommendations  
Prof. François Tranquart (Switzerland) |
| 16.30-17.00 | Coffee break                                                        |
| 17.00-17.30 | Non-linear Imaging Modalities: optimal machine settings and principles of DCE-US quantification  
Prof. Jean Michel Correas (France) |
| 17.30-18.00 | Principles of Molecular Imaging and drug delivery applied to microbubbles  
Prof. Eleanor Stride (England) |

### FRIDAY, JUNE 13th 2014

**LIVER APPLICATIONS 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 08.30-09.00 | Is CEUS useful for assessing the severity of liver fibrosis and portal hypertension?  
Dr. Annalisa Berzigotti (Spain) |
| 09.00-09.30 | CEUS for hepatic vascular diseases and vascular complications  
Dr. Angeles García Criado (Spain) |
| 09.30-10.00 | CEUS evaluation of focal lesions in the normal liver  
Prof. Fabio Piscaglia (Italy) |
| 10.00-11.00 | Clinical cases                                                       |
| 11.00-11.30 | Coffee break                                                        |
### CONTROVERSY:
**SHOULD CEUS BE USED FOR THE CHARACTERIZATION OF SMALL LIVER NODULES DETECTED IN CIRRHOSIS?**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.30-12.00</td>
<td>Cons</td>
</tr>
<tr>
<td></td>
<td>Prof. Luis Bianchi (Spain)</td>
</tr>
<tr>
<td>12.00-12.30</td>
<td>Pros</td>
</tr>
<tr>
<td></td>
<td>Prof. Fabio Piscaglia (Italy)</td>
</tr>
<tr>
<td>12.30-13.00</td>
<td>Role of CEUS in a multimodality approach to small nodules in liver cirrhosis</td>
</tr>
<tr>
<td></td>
<td>Prof. Hyun-Jung Jang (Canada)</td>
</tr>
<tr>
<td>13.00-13.20</td>
<td>Discussion with the audience</td>
</tr>
<tr>
<td>13.20-14.30</td>
<td>Lunch break</td>
</tr>
<tr>
<td>14.30-15.30</td>
<td>Clinical cases with multiple choice quiz</td>
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<tr>
<td></td>
<td>US staff members of Hospital Clinic coordinated by Dr. Ramón Vilana</td>
</tr>
</tbody>
</table>

### LIVER APPLICATIONS 2

**Chairperson:** Dr. Annalisa Berzigotti

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.30-16.00</td>
<td>CEUS for assessing the response to radiofrequency ablation of focal liver lesions</td>
</tr>
<tr>
<td></td>
<td>Dr. Franca Meloni (Italy)</td>
</tr>
<tr>
<td>16.00-16.30</td>
<td>DCE-US for assessing the response to anti-angiogenic treatments of solid neoplasias: state of the art</td>
</tr>
<tr>
<td></td>
<td>Dr. Nathalie Lassau (France)</td>
</tr>
<tr>
<td>16.30-17.00</td>
<td>Coffee break</td>
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</tbody>
</table>

### BILIARY SYSTEM, PANCREAS AND INTESTINE

**Chairperson:** Dr. Rosa Gilabert

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.30</td>
<td>CEUS for assessing the diseases of biliary system</td>
</tr>
<tr>
<td></td>
<td>Prof. Concepció Bru (Spain)</td>
</tr>
<tr>
<td>17.30-18.00</td>
<td>CEUS exploration of the pancreas and of pancreatic masses</td>
</tr>
<tr>
<td></td>
<td>Prof. Mirko D’Onofrio (Italy)</td>
</tr>
<tr>
<td>18.00-18.30</td>
<td>CEUS for inflammatory bowel disease and other GI tract diseases</td>
</tr>
<tr>
<td></td>
<td>Dr. Tomás Ripollés (Spain)</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>09.30-10.00</td>
<td>CEUS in the follow-up of endovascular abdominal aortic repair</td>
</tr>
<tr>
<td></td>
<td>Dr. Rosa Gilabert (Spain)</td>
</tr>
<tr>
<td>10.00-10.30</td>
<td>Blunt abdominal trauma</td>
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<tr>
<td></td>
<td>Dr. Carla Serra (Italy)</td>
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<tr>
<td>10.30-11.00</td>
<td>Coffee break</td>
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<tr>
<td></td>
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<tr>
<td>11.00-11.30</td>
<td>CEUS in the urinary system evaluation</td>
</tr>
<tr>
<td></td>
<td>Dr. Carlos Nicolau (Spain)</td>
</tr>
<tr>
<td>11.30-12.00</td>
<td>Voiding urosonography</td>
</tr>
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<td></td>
<td>Dr. Carmina Duran (Spain)</td>
</tr>
<tr>
<td>12.00-13.00</td>
<td>Clinical cases with multiple choice quiz</td>
</tr>
<tr>
<td>13.00-13.15</td>
<td>Interactive learning: final quiz (test)</td>
</tr>
<tr>
<td>13.15-13.30</td>
<td>Farewell</td>
</tr>
</tbody>
</table>

**Chairperson:**
- Dr. Carlos Nicolau (Other Abdominal Applications)
- Dr. Rosa Gilabert (Urinary System)
GENERAL INFORMATION

DATE
12th, 13th, 14th June 2014

VENUE
HOSPITAL CLINIC DE BARCELONA
C/. Villarroel, 170 - 08036 Barcelona, Spain
Sala de Actos (Escalera 9-11, 3ª planta)
Auditorium (Stair # 9-11, 3rd Floor)

REGISTRATION FEES

<table>
<thead>
<tr>
<th>FEES</th>
<th>Early Bird Registration until March 28</th>
<th>Late Registration after March 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>550 €</td>
<td>600€</td>
</tr>
<tr>
<td>Registration Physician in training</td>
<td>400 €</td>
<td>450 €</td>
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</tbody>
</table>

REGISTRATION FEE INCLUDES:
- Admittance to all lectures
- Congress bag
- Final Programme
- Certificate of attendance
- Daily coffee breaks
- Abstracts book

METHOD OF PAYMENT
Credit card: Registrations can be made by credit card through the homepage.
Bank transfer: registrations can be made by bank transfer to La Caixa account: 2100 0549 41 0200294306
Iban: ES35 2100 0549 41 0200294306
Swift: CAIXESBBXXX
Both the registration form and the proof of payment must be sent to the following e-mail address: ceusbcn2014@geyseco.es

REGISTRATION CANCELLATION POLICY
Refund of registration fees: a 30% administrative fee will be applied if the cancellation is notified in written to GRUPO GEYSECO S.L. prior to March 28th, 2014. After this date, no cancellation refunds will be made. All refunds will be paid after the Course.

ACCREDITED BY:
12 European CME credits (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME)

“Activitat acreditada pel Consell Català de Formació Continuada de les Professions Sanitàries – Comisión de Formación Continuada del Sistema Nacional de Salud, 2,2 créditos equivalentes a 14h lectivas” 09/10557-MD

TECHNICAL SECRETARIAT

www.geyseco.es/ceusbcn2014
3. EVALUACIÓN DE LAS SESIONES

* Puntuación máxima 5 (muy bueno), mínima 1 (insuficiente). Muestra 39 encuestas.

<table>
<thead>
<tr>
<th>Scientific Content</th>
<th>4,42</th>
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<tbody>
<tr>
<td>General interest of the topics</td>
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<tr>
<td>Did the conference fulfill your reasons for attending?</td>
<td>4,15</td>
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</table>

<table>
<thead>
<tr>
<th>Thursday, June 12th</th>
<th>4,54</th>
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</thead>
<tbody>
<tr>
<td>Microbubbles: Physical principles, safety and novel applications in ultrasonography</td>
<td></td>
</tr>
<tr>
<td>Micobubbles: past and future</td>
<td></td>
</tr>
<tr>
<td>CEUS safety, terminology and reporting: EFSUMB recommendations</td>
<td>3,64</td>
</tr>
<tr>
<td>Non-linear Imaging Modalities: optimal machine settings and principles of DCE-US quantification</td>
<td>3,74</td>
</tr>
<tr>
<td>Principles of Molecular Imaging and drug delivery applied to microbubbles</td>
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<thead>
<tr>
<th>Friday, June 13th</th>
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<tbody>
<tr>
<td>Liver Applications 1</td>
<td></td>
</tr>
<tr>
<td>Is CEUS useful for assessing the severity of liver fibrosis and portal hypertension?</td>
<td></td>
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<tr>
<td>CEUS for hepatic vascular diseases and vascular complications</td>
<td>4,23</td>
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<tr>
<td>CEUS evaluation of local lesions in the normal liver</td>
<td>4,26</td>
</tr>
<tr>
<td>Clinical cases</td>
<td>4,41</td>
</tr>
<tr>
<td>Ontroversy: Should CEUS be used for the characterization of small liver nodules detected in cirrhosis</td>
<td></td>
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<tr>
<td>Cons</td>
<td>4,33</td>
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<tr>
<td>Pros</td>
<td>4,21</td>
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<tr>
<td>Role of CEUS in a multidisciplinary approach to small nodules in liver cirrhosis</td>
<td>4,31</td>
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<tr>
<td>Clinical cases with multiple choice quiz</td>
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<table>
<thead>
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<th>Liver Applications 2</th>
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<tbody>
<tr>
<td>CEUS for assessing the response to radiofrequency ablation of local liver lesions</td>
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<tr>
<td>DCE-US for assessing the response to anti-angiogenic treatments of solid neoplasias: state of the art</td>
<td>3,92</td>
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<table>
<thead>
<tr>
<th>Biliary System, Pancreas and Intestine</th>
<th>3,82</th>
</tr>
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<tbody>
<tr>
<td>CEUS for assessing the diseases of biliary system</td>
<td></td>
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<tr>
<td>CEUS exploration of the pancreas and of pancreatic masses</td>
<td>3,92</td>
</tr>
<tr>
<td>CEUS for inflammatory bowel disease and other GI tract diseases</td>
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<th>Saturday, June 14th</th>
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<td>Other Abdominal Applications</td>
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<tr>
<td>CEUS in the follow-up of endovascular abdominal aortic repair</td>
<td></td>
</tr>
<tr>
<td>Blunt abdominal trauma</td>
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<table>
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<td>CEUS in the urinary system evaluation</td>
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<tr>
<td>Voiding urosonography</td>
<td>4,48</td>
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<table>
<thead>
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<th>Organization</th>
<th>4,49</th>
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<tbody>
<tr>
<td>Registration process</td>
<td></td>
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<tr>
<td>Course advertising</td>
<td>4,23</td>
</tr>
<tr>
<td>Web page</td>
<td>4,06</td>
</tr>
<tr>
<td>Facilities at the venue</td>
<td>4,27</td>
</tr>
<tr>
<td>Coffee</td>
<td>4,31</td>
</tr>
</tbody>
</table>
1. What is the name of the phenomenon thought to be the primary mechanism for the enhanced uptake of therapeutic molecules produced by ultrasound driven microbubbles?

   a. microjetting
   b. microstreaming
   c. microporation
   d. invagination

2. Which of the following published CEUS/DCE-US-based methods seems to be the most promising to obtain a non-invasive estimate of hepatic venous pressure gradient for cirrhotic portal hypertension?

   a. Hepatic Veins Arrival Time – HVAT by using Levovist®
   b. Hepatic Veins Transit Time – HVTT by using SonoVue®
   c. SubHarmonic Aided Pressure Estimation – SHAPE by using Sonazoid™
   d. Regional hepatic perfusion – RHP by using SonoVue®

3. In relation with the use of contrast enhanced ultrasound in the study of Budd-Chiari syndrome, which of the following statements is false?

   a. A thrombus into the hepatic vein that shows enhancement in the arterial phase of the CEUS study is malignant.
   b. The bland thrombus into the hepatic vein shows lack of vascularization during all phases of the CEUS study.
   c. The benign hepatic nodules associated to the Budd-Chiari syndrome are hypovascular in the CEUS study.
   d. The hyperplasia nodular-like nodules associated to the Budd-Chiari syndrome can show enhancement in arterial phase and washout in venous phase of the CEUS study such as the hepatocellular carcinoma.

4. If during a US screening in a patient with liver cirrhosis a 13 mm nodule is detected and CEUS shows arterial complete enhancement followed by early washout in venous phases, which attitude is recommended?

   a. FNB is mandatory
   b. We can stop because it is a typical HCC pattern
   c. We must perform MR or CT to exclude the possibility of a ICC
   d. New CEUS control in 2-3 months is mandatory

5. The size of thermoablation measured immediately after ablation is

   a. Largest than 24h later
   b. Smallest than24h later
   c. Similar to the diameter measured immediately after ablation
6. Which is the parameter significantly linked to the progression free survival in monocentric and multicentric studies:
   a. Peak Intensity
   b. Mean transit time
   c. Slope
   d. Area under the curve

7. The use of CEUS for the diagnosis in cholecystitis:
   a. Is always necessary
   b. Improves the visualization of gallstones
   c. Allows better delimitation of the wall and the presence of a perforation.
   d. Discloses wall enhancement in oedema secondary to portal hypertension.

8. Pancreatic ductal adenocarcinoma at CEUS is:
   a. hypoechoic
   b. hyperechoic
   c. isoechoic
   d. heterogeneous

9. Pancreatic endocrine tumor at CEUS is:
   a. hypoechoic
   b. hyperechoic
   c. isoechoic
   d. heterogeneous

10. Liver metastases from pancreatic tumors in the late phase of CEUS are
    a. hypoechoic
    b. hyperechoic
    c. it depends from the tumor
    d. heterogeneous

11. CEUS in Crohn’s disease: Select the wrong answer among the following statements:
    a. The degree of enhancement predicts better than wall thickness or colour Doppler. the severity of disease evaluated by endoscopy.
    b. The degree of wall enhancement predicts endoscopic healing better than wall thickness or colour Doppler.
    c. The increase of enhancement (%)is greater in inflammatory stenotic areas than in fibrotic stenosis.
    d. In almost 100% of cases the use of CEUS allows to differentiate adequately a flegmon from an abscess.
12. Lifelong surveillance is necessary in patients undergoing endovascular aortic aneurysm repair in order to detect post-procedural complications. Imaging techniques have a pivotal role in their diagnosis. Which of the following points referring to EVAR surveillance is not true?

a. CTA provides a comprehensive evaluation of EVAR treated patients.
b. CDUS is the non-invasive alternative to CTA for endoleak detection. The reported evidence suggests it is suitable for its sole use in endoleak detection after EVAR.
c. CEUS is a fast, minimally invasive, reliable alternative to CTA to assess endoleak presence in EVAR treated patients.
d. CEUS plus plain abdominal x ray can replace CTA in the follow-up of patients with stable or decreasing aneurysm sac size and no evidence of endoleak at 1 year post-procedural CTA.

13. What is the main indication of CEUS in complicated pyelonephritis?

a. Detection of excretory tract dilatation.
b. Differentiation between nephritic areas and abscesses.
c. Guidance of aspiration of abscesses.
d. To identify perirenal collections.

14. Which of the following statements about the intravesical administration of second-generation ultrasound contrast agents for serial voiding urosonography (VUS) is true?

a. Although second-generation contrast agents are not explicitly indicated for VUS in children, they can be used “off label”.
b. Important adverse effects have been reported in association with the intravesical administration of second-generation ultrasound contrast agents in children, which are contraindications for their use.
c. The protocol that calls for mixing the ultrasound contrast agent with physiological serum outside the bladder has negative effects on the examination because it makes it more difficult to obtain the right mixture.
d. The protocol that calls for mixing the ultrasound contrast agent with physiological serum outside the bladder does not allow cyclical studies in VUS.

15. According the EFSUMB GUIDELINES (29) CEUS for trauma is recommended:

a. As an alternative to CT
b. As an alternative to CT in stable patients with isolated blunt moderate-energy abdominal trauma, especially in children
b. As an alternative to CT in stable patients with isolated blunt moderate-energy abdominal trauma, but no in children.