

ES-S01

Resuscitative Point-of-care Ultrasound

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Point of care ultrasound plays an important role during resuscitation, traditionally using transthoracic echography, but transesophageal echocardiography is more and more popular in the emergency departments, we will share cases of TEE during resuscitation to present how TEE can help us to diagnose and treatment of OHCA patient.

ES-S02

Ultrasound in Post-resuscitation Care

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Cardiac arrest (CA) is a major challenge in public health. Early recognition, cardiopulmonary resuscitation (CPR), defibrillation, advanced life support, and immediate post-resuscitation care are all key elements in the chain of survival and contribute to patient survival. Although the rate of return of spontaneous circulation (ROSC) has been increasing as advances are made in resuscitation science, a gap between ROSC and further survival in patients with CA remains. Therefore, high quality post-resuscitation care and assessment is crucial in optimizing outcomes for patients following successful resuscitation. However, most of these patients remain comatose and the requirement for transportation to other examination rooms increases their risk of injury. Ultrasound (US) can be

performed at the bedside and is characterized by high accessibility, timeliness, and repeated measurement without radiation. The efficacy of US in real-time differential diagnosis and guiding further treatment decisions has been well demonstrated in pre-arrest conditions and during resuscitation. However, evidence is limited in post-resuscitation care. This lecture aims to provide an overview of current evidence regarding the application of US in post-resuscitation care. For identifying the cause of cardiac arrest, cardiac US is mainly used to detect regional wall motion abnormality and dilated right ventricles. For hemodynamic monitoring, inferior vena cava, heart, and lung US are frequently adopted. Left ventricular outflow tract velocity time integral has the best performance in predicting fluid responsiveness. Brain and cardiac US and optic nerve sheath diameter can be used to predict neurological prognoses. US can play a key role in post-resuscitation care and be integrated into current assessments in the future.

ES-S03

The Application of Point-of-care Ultrasound for COVID

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The application of point-of-care ultrasound (POCUS) has become a useful adjunct to clinical evaluation and procedural guidance. The outbreak of novel coronavirus disease 2019 (COVID-19) has urged clinicians to familiarize themselves with POCUS, while traditional tools and methods may be hindered due to transmission concerns. The utilization of POCUS in COVID-19 patients focuses primarily, but not exclusively, on four domains: the respiratory system, the cardiac system, the vascular system, and the peri-procedure assistance. To avoid unnecessary or time-consuming exposure to COVID-19 patients, an efficient and problems-oriented POCUS performed by

experienced clinicians should be emphasized. Last but not least, all users performing POCUS on COVID-19 suspects or confirmed cases should strictly adhere to disinfection guidance from both the manufacture of the machine and the quarantine regulations of the local healthcare facility. Appropriate cleaning of both the ultrasound machine and the transducer, as well as disposable ultrasonic gel, is important to prevent cross-infection of COVID-19.

ES-S04

Colonic Diverticulitis Location Affects the Diagnostic Accuracy of Point-of-care Ultrasound: A Multicenter, 10-year Study

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Objectives: Current studies demonstrated that point-of-care ultrasound (PoCUS) had high sensitivity and specificity in diagnosing acute colonic diverticulitis in western patients. However, the distribution of the diverticulitis location in Asian people differed. This multicenter, 10-year study aims to evaluate the diagnostic accuracy of PoCUS in different locations of uncomplicated diverticulitis among Asians.

Methods: Patients who received PoCUS examinations first, and were diagnosed to have uncomplicated diverticulitis by computed tomography from October 2008 to September 2018 were included. The primary outcome was the diagnostic accuracy of PoCUS in the different locations, compared with the final diagnosis made by the expert physicians. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were computed.

Results: A total of 326 patients were included. The overall accuracy of PoCUS was 92% (95% CIs,

89.1-95.0%). The accuracy was lower in the cecal diverticulitis (84.3%, 95% CIs, 77.8-90.8%), compared with other locations ($p < 0.0001$). Nine of 10 false positives had the final diagnosis of appendicitis. Five cases with an outpouching round structure could not be traced to their origin in the cecum and 4 had mildly elongated “diverticula” which was appendicitis.

Conclusions: PoCUS exhibited a good diagnostic accuracy in diagnosing uncomplicated diverticulitis in the Asian population. However, the accuracy varied according to the location which was relatively low in the cecum.

ES-S05

Clinical Pitfalls of Point-of-care Ultrasound

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Point-of-care ultrasound (POCUS) is defined as the acquisition, interpretation, and immediate clinical integration of ultrasonographic imaging performed by a treating physician at the patient’s bedside. It has been applied in many settings of patient care, from diagnosis, resuscitation, to procedural guidance. In general, 25 to 50 examinations are required to ensure basic competence in performing most diagnostic ultrasound procedures. It is as well to know the pitfall while performing ultrasonography in order to facilitate deliberate practice and diagnostic accuracy. Point-of-care ultrasound pitfalls are caused by artifacts during image acquisition, lack of experiences during image interpretation. In this section, I am going to exemplified common pitfalls from trauma, cardiac, lung, abdomen, genitourinary, airway to procedural ultrasound. Knowledge about the numerous pitfalls and key pearls can help the busy clinician use emergency ultrasound in a safe and efficient manner. Besides the common sources of pitfalls, interpreting POCUS findings into the broader clinical context, most POCUS misdiagnosis can be avoided, and thus patient safety can be

enhanced.

ES-S06

**The Application of Point-of-care Ultrasound
for Pediatric Head Trauma**

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Blunt head trauma is a common presentation to emergency departments (EDs) around the world, especially for young children. Currently, CT is the reference standard for diagnosing traumatic brain injury (TBI) in children. The purpose of this presentation is to introduce the update evidences suggest that POCUS is a valid option for diagnosing skull fractures in children visiting the ED after blunt head injury.