

Introduction

Focused Ultrasound in Intensive Care (FUSIC) refers to the use of ultrasound by a trained bedside clinician to guide patient management in real time ¹. Ultrasound is widely applied in practice and there is growing consensus that it is an essential tool for managing acutely ill patients in the intensive care unit (ICU). We use FUSIC as additional assessment tool to guide management and decision-making plan for deteriorating patients on the wards.

Objectives and Methods

Objectives

To investigate whether how often information gained from FUSIC imaging had an impact on management decisions in a critical care outreach setting.

Methods

A single-centre observational study at a tertiary referral institution. All patients receiving ultrasound during a 12-month period were included. Routine procedures for teaching purpose were not included.

Results

Forty-six patients were assessed and supported by a combined focused lung and heart ultrasound performed at the patient bedside on the wards. In 46 patients FUSIC was instrumental in the differential diagnostic work-up and in guiding the clinical management. In 32 (70%) patients FUSIC aided fluid therapy or diuresis (in case of pulmonary oedema) and helped targeting fluid balance. In three patients though to have consolidation on chest x-ray we were able to identify significant pleural effusions without needing additional CT scan. In four patients with hypotension an additional CT-PA was warranted due to dilated and right ventricle (RV) with abnormal septal motion and decreased left ventricle (LV) size ratio (i.e. sign of right heart strain) as highly suspicious of pulmonary embolus. In two young patients with Coronavirus disease 2019 (COVID-19), using FUSIC we identified severe LV dysfunction which was subsequently diagnosed as myocarditis and Angiotensin-converting enzyme (ACE) inhibitors therapy was commenced within 24 hours. Further diagnosis included cardiac tamponade (n = 2) requiring pericardiocentesis and pneumothorax (n =1). In all cases the use of ultrasound helped in promptly referring patients to specialist team (i.e. respiratory or cardiology) and to the ICU consultant.

Conclusions

In our critical care outreach practice, FUSIC is added value to the clinical assessment. If used by adequately trained practitioner FUSIC is an tool which aids diagnostic and clinical decision-making ensuring safety and accurate management of acutely ill and deteriorating patients.

References

¹ Volpicelli G, Elbarbary M, Blaivas M, et al. International evidence-based recommendations for point-of-care lung ultrasound. *Intensive Care Med.* 2012;38(4):577-591. doi:10.1007/s00134-012-2513-4