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Routine use of handheld ultrasound lead to early diagnosis and treatment of life threatening cardiac condition: A case report of early diagnosis and treatment of cardiac tamponade

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Introduction: With its portability and applications in wide array of clinical situations, handheld ultrasound (HHU) is gaining acceptance in many fields in medicine. Mehta et al showed that when used by cardiologist, HHU provided more accurate diagnosis than physical examination for most of common cardiovascular abnormalities.

Hypothesis: Routine use of HHU to supplement the cardiac exam could result in early diagnosis and treatment of life threatening cardiac conditions.

Methods: Bedside echo with HHU, in addition to routine cardiac exam, was performed on all patients seen by cardiology consult service at a university-based tertiary medical center during the study period in 2016. Case description: a 34-year-old male was transferred from dialysis center for hypotension. Patient was in acute respiratory failure and shock in the emergency room requiring intubation and pressors. Cardiac exam showed diminished heart sounds and HHU revealed a large pericardial effusion suggestive of tamponade. Emergent pericardiocentesis was performed under the guidance of HHU, and patient's hemodynamics improved immediately after removal of 2.5L of pericardial effusion.

Results: We demonstrate a case where consistent use of HHU lead to early diagnosis and treatment of cardiac tamponade, a rare but serious cardiac emergency.

Conclusion: The use of HHU to supplement the cardiac exam resulted in life saving treatment for patient. In literature, there are two prior reports of cardiac tamponade that were diagnosed and treated with HHU guidance. There is much debate over feasibility of HHU in cardiology due to cost of device, opportunity cost, user qualification, and lack of outcome data. Future studies are needed to address the above issues. However, from our university-based tertiary center experience, HHU was helpful in the immediate diagnosis and treatment of cardiac tamponade.

Biography

Howard Lan is a Senior Cardiology Fellow at Loma Linda University Medical Center and will continue his training in interventional cardiology at UCSF Fresno in 2018. He is passionate in the field of STEMI research with goals to identify factors that result in improved outcome in this patient population. He hopes to translate his research work into clinical practice in the future to better help patients who present with STEMI. He is also involved in Heart Failure Research and has found an association between cognitive impairment and higher mortality rate. By identifying heart failure patients who are at higher risks for poor outcome, the goal is to intervene early to improve quality of life and to improve overall survival.

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