

D. Fredericks, MD, M. Howlett, MD, J. Mekwan, MD, B. Ramrattan, MD, J. Middleton, MD, P. Olszynski, MD, M. Peach, MD, L. Taylor, MD, T. Dahn, MD, S.T. Hurley, BSc, K. MacSween, BSc, C. Cox, MD, S. Hunter, BSc, J. Bowra, MD, M. Lambert, MD, R. Jarman, MBBS, T. Harris, MD, V. Noble, MD, J. Connolly, MD, P.R. Atkinson, MD, Department of Emergency Medicine, University of Manitoba, Health Sciences Centre, Saint John, NB

**Introduction:** Point of care ultrasound (PoCUS) has become an established tool in the initial management of patients with undifferentiated hypotension in the emergency department (ED). Current established protocols (e.g. RUSH and ACES) were developed by expert user opinion, rather than objective, prospective data. Recently the SHoC Protocol was published, recommending 3 core scans; cardiac, lung, and IVC; plus other scans when indicated clinically. We report the abnormal ultrasound findings from our international multicenter randomized controlled trial, to assess if the recommended 3 core SHoC protocol scans were chosen appropriately for this population. **Methods:** Recruitment occurred at seven centres in North America (4) and South Africa (3). Screening at triage identified patients (SBP < 100 or shock index > 1) who were randomized to PoCUS or control (standard care with no PoCUS) groups. All scans were performed by PoCUS-trained physicians within one hour of arrival in the ED. Demographics, clinical details and study findings were collected prospectively. A threshold incidence for positive findings of 10% was established as significant for the purposes of assessing the appropriateness of the core recommendations. **Results:** 138 patients had a PoCUS screen completed. All patients had cardiac, lung, IVC, aorta, abdominal, and pelvic scans. Reported abnormal findings included hyperdynamic LV function (59; 43%); small collapsing IVC (46; 33%); pericardial effusion (24; 17%); pleural fluid (19; 14%); hypodynamic LV function (15; 11%); large poorly collapsing IVC (13; 9%); peritoneal fluid (13; 9%); and aortic aneurysm (5; 4%). **Conclusion:** The 3 core SHoC Protocol recommendations included appropriate scans to detect all pathologies recorded at a rate of greater than 10 percent. The 3 most frequent findings were cardiac and IVC abnormalities, followed by lung. It is noted that peritoneal fluid was seen at a rate of 9%. Aortic aneurysms were rare. This data from the first RCT to compare PoCUS to standard care for undifferentiated hypotensive ED patients, supports the use of the prioritized SHoC protocol, though a larger study is required to confirm these findings.

**Keywords:** point of care ultrasound (PoCUS), hypotension, emergency medicine

#### LO45

**Does the use of point of care ultrasonography improve survival in emergency department patients with undifferentiated hypotension? The first Sonography in Hypotension and Cardiac Arrest in the Emergency Department (SHOC-ED1) Study; an international randomized controlled trial**

P.R. Atkinson, MD, J. Milne, L. Diegelmann, MD, H. Lamprecht, MBChB, M. Stander, MB, BCh, MMed EM, D. Lussier, MD, C. Pham, MD, R. Henneberry, MD, J. Fraser, BN, M. Howlett, MD, J. Mekwan, MD, B. Ramrattan, MD, J. Middleton, MD, D.J. van Hoving, MMed, D. Fredericks, MD, M. Peach, MD, L. Taylor, MD, T. Dahn, MD, S.T. Hurley, MAsc, K. MacSween, BSc, C. Cox, MD, L. Richardson, MD, O. Loubani, BSc, MD, G. Stoica, PhD, S. Hunter, BSc, P. Olszynski, MD, D. Lewis, MBBS, Department of Emergency Medicine, Dalhousie University, Saint John Regional Hospital, Saint John, NB

**Introduction:** Point of care ultrasound (PoCUS) is an established tool in the initial management of patients with undifferentiated hypotension

in the emergency department (ED). While PoCUS protocols have been shown to improve early diagnostic accuracy, there is little published evidence for any mortality benefit. We report the findings from our international multicenter randomized controlled trial, assessing the impact of a PoCUS protocol on survival and key clinical outcomes. **Methods:** Recruitment occurred at 7 centres in North America (4) and South Africa (3). Scans were performed by PoCUS-trained physicians. Screening at triage identified patients (SBP < 100 or shock index > 1), randomized to PoCUS or control (standard care and no PoCUS) groups. Demographics, clinical details and study findings were collected prospectively. Initial and secondary diagnoses were recorded at 0 and 60 minutes, with ultrasound performed in the PoCUS group prior to secondary assessment. The primary outcome measure was 30-day/discharge mortality. Secondary outcome measures included diagnostic accuracy, changes in vital signs, acid-base status, and length of stay. Categorical data was analyzed using Fishers test, and continuous data by Student T test and multi-level log-regression testing. (GraphPad/SPSS) Final chart review was blinded to initial impressions and PoCUS findings. **Results:** 258 patients were enrolled with follow-up fully completed. Baseline comparisons confirmed effective randomization. There was no difference between groups for the primary outcome of mortality; PoCUS 32/129 (24.8%; 95% CI 14.3-35.3%) vs. Control 32/129 (24.8%; 95% CI 14.3-35.3%); RR 1.00 (95% CI 0.869 to 1.15; p = 1.00). There were no differences in the secondary outcomes; ICU and total length of stay. Our sample size has a power of 0.80 ( $\alpha$ :0.05) for a moderate effect size. Other secondary outcomes are reported separately. **Conclusion:** This is the first RCT to compare PoCUS to standard care for undifferentiated hypotensive ED patients. We did not find any mortality or length of stay benefits with the use of a PoCUS protocol, though a larger study is required to confirm these findings. While PoCUS may have diagnostic benefits, these may not translate into a survival benefit effect.

**Keywords:** point of care ultrasound (PoCUS), hypotension, emergency medicine

#### LO46

**The impact of rapid antigen detection testing on antibiotic prescription for acute pharyngitis: a systematic review and meta analysis**

O. Anjum, BSc, P. Joo, MDCM BEng, University of Ottawa, Ottawa, ON

**Introduction:** Acute pharyngitis is a common reason for primary care or emergency department visits, often resulting in antibiotic prescription. Rapid antigen detection tests (RADT) are routinely used to diagnose Group A Streptococcus (GAS) pharyngitis. However, due to its low sensitivity, patient pressures and conflicting guidelines, the RADT often complicates management decisions. Our aim was to assess the impact of RADT in patients presenting with acute GAS pharyngitis on the antibiotic prescription rate and appropriateness of antibiotic management. **Methods:** We systematically searched Medline, Embase, and Cochrane databases from 1980 to June 2016. Studies were selected according to a predefined PRISMA protocol and data extracted by two independent reviewers. Prospective and retrospective studies that evaluated the impact of RADT on antibiotic prescription for pharyngitis were included. Study quality was assessed using Cochrane Risk of Bias Tool and the Newcastle-Ottawa Scale. Our main outcome was a dichotomous measure of antibiotic prescription, with or without RADT availability. Studies were combined if there was low clinical and statistical heterogeneity ( $I^2 < 30\%$ ). Bivariate Mantel-Haenszel random effects model was used to perform meta analyses using SPSS 22 and Revman 5. **Results:** We identified 4003 studies: 139 were selected for full text review; 10 met our inclusion criteria (N = 10859 participants,