

group, 95% CI 2.78–3.02), but significantly more preterm babies were found in the sample group (23% versus 9%,  $p < 0.0001$ ). Admitted BBAs had significantly lower average weights than those not admitted (2.19 versus 2.96 kg,  $p < 0.0001$ ). No significant differences were found when maternal age, parity, co morbidities and distance from the hospital were compared. There were significantly more unbooked mothers in the sample group (23% versus 6.7%,  $p < 0.0001$ ), and only 54.4% of mothers of the admitted BBAs had booked antenatally, compared to 78.89% of mothers whose babies were discharged. Admission and complication rates were similar between the groups, but the average length of stay was seven days longer in admitted BBAs compared to admitted controls.

**Conclusions:** Prevalence of BBAs is comparable to other developing countries, and is associated with poor antenatal attendance, prematurity, delay in presentation to hospital and lengthier hospital stays. These factors have implications on prehospital care of newborns and access to maternal and child health care in general.

<http://dx.doi.org/10.1016/j.afjem.2013.08.058>

### **The hi-map scan: The use of emergency ultrasound to evaluate haemodynamically unstable patients in the emergency setting**

I.L. Postma<sup>\*</sup>, D.R. Wood, L.A. Wallis

<sup>\*</sup>Corresponding author affiliation and contact: Department of Health, KwaZulu-Natal, South Africa. Email address: naas10@gmail.com

**Introduction:** The HI-MAP (Heart, IVC, Morrison's pouch, Aorta, Pneumothorax) scan is a focussed bedside ultrasound examination designed to assess the hydration status of patients by quick assessment of cardiac contractility, inferior vena cava collapsibility during inspiration, the aorta and the presence of free fluid in the abdomen or chest. In the Emergency Centre (EC) this non-invasive tool can assist in early accurate diagnosis of critically ill patients. The aim of this study is to demonstrate the use of the HI-MAP scan in a tertiary EC in KZN to assist in diagnosis and determine hydration status in critically ill patients.

**Methods:** This is a cross sectional retrospective descriptive study of HI-MAP scans performed on critically ill patients admitted to the EC from January 2010 until October 2011. The scans were performed by level 2 emergency ultrasound trained doctors. Provisional diagnosis using clinical skills and history was documented on admission. The HI-MAP scan was performed and final diagnosis documented in the database, based on clinical findings as well as ultrasound findings. Diagnosis was categorized into fluid overload, cardiogenic and hypovolaemic shock.

**Results:** A total of 133 patients were included. When provisional compared to final diagnosis after HI-MAP, 87(66%) patients had the same diagnosis confirmed by ultrasound. Forty six (34%) patients had different diagnosis after HI-MAP was performed. In fluid overloaded patients 95% had either poor contractility or Inferior vena cava collapsibility index (IVC-CI) of less than 25%. In hypovolaemic patients 96% had either hyperdynamic cardiac contractility or IVC-CI of less than 50%.

**Conclusion:** HI-MAP scan is a good non-invasive tool for assessing volume status in critically ill patients and can be used to categorize patients into fluid overload, cardiogenic shock or hypovolaemic shock. Cardiac contractility and IVC-CI are the two most sensitive components of this scan.

<http://dx.doi.org/10.1016/j.afjem.2013.08.059>

### **Antihypertensive medications and diastolic dysfunction progression in an African American population**

H.M. Prendergast<sup>\*</sup>, S. Dudley, J. Kane, E.B. Bunney, A. Acosta, J. Marcucci

<sup>\*</sup>Corresponding author affiliation and contact: Department of Emergency Medicine, University of Illinois Medical Centre, Chicago, IL, USA. Email address: hprender.heather@gmail.com

**Background:** Although different classes and combinations of antihypertensive agents have demonstrated effectiveness in management of hypertension, the choice of drugs in African American patients is often different. To purpose of this study is to determine whether there is an association between class of antihypertensive medication and diastolic dysfunction progression in an African American population.

**Methods:** A retrospective cohort study of African American patients with echocardiograms demonstrating diastolic dysfunction from an echocardiogram database for an academic medical centre. The main outcome measures were change in diastolic function grade as a function of time and associated risk factors. Twelve risk factors evaluated were considered in the analysis: age, body mass index (BMI), Diabetes Mellitus, tobacco use, use of Beta Blockers, Angiotensin Converting Enzymes (ACE) inhibitors, Angiotensin Receptor Blockers, Calcium Channel Blockers, diuretics, left ventricular hypertrophy, and left atrial size.

**Results:** During the 6-year retrospective cohort study period, there were 96 patients in the database with 2 or more echocardiograms demonstrating diastolic dysfunction; representing 302 echocardiograms. The mean time between echocardiograms was 2.6 years. The mean age was 64.2 ( $\pm 10.1$ ) with 78 % female and a mean BMI 31.2 ( $\pm 7.4$ ). The majority of subjects had Grade I diastolic dysfunction at the initial examination ( $N = 87$  (90.6%)). Approximately 22.9% ( $n = 22$ ) of the study cohort demonstrated diastolic dysfunction progression. In univariate risk factor analysis, age was the only risk factor associated with progression, as younger patients were more likely to progress ( $p < 0.05$ ). In multivariate analysis use of calcium channel blockers was protective against diastolic dysfunction progression ( $p < 0.05$ ), with CCB users having an odds ratio of 0.28 (0.09, 0.90) relative to non-users.

**Conclusions:** Our study showed use of Calcium channel blockers to have a protective effect against progression of diastolic dysfunction in this African American cohort. Identifying factors that can mediate disease progression is particularly important for hypertensive African Americans, who have significantly higher rates of developing disease complications such as diastolic heart failure.

<http://dx.doi.org/10.1016/j.afjem.2013.08.060>

### **Clinical presentation, diagnostic evaluation, treatment and diagnoses of febrile children presenting to the emergency department at Muhimbili national hospital in Dar es Salaam, Tanzania**

F.H. Ringo<sup>\*</sup>, U. George, N. Glomb, V. Mwafongo, M.S. Runyon, T. Reynolds

<sup>\*</sup>Corresponding author affiliation and contact: Department of Emergency Medicine, Muhimbili National Hospital, Dar es Salaam, Tanzania. Email address: faithringo@gmail.com

**Introduction:** While there are many guidelines for the ED evaluation of febrile children, these are largely derived and validated in high-resource settings. There is limited literature documenting recommended or actual management in resource-limited settings. We