

Zebra in the intensive care unit: a metacognitive reflection on misdiagnosis

Sam Orde and Anthony S McLean



TO THE EDITOR: We read with interest Gillon and Radford's article in the Journal.¹ It describes a delayed diagnosis of severe mitral regurgitation in a young woman admitted to an Australian intensive care unit with subacute presentation of severe type I respiratory failure and diffuse interstitial changes on her chest x-ray. The patient had a background of aortic coarctation repair in infancy and hepatitis C infection. A formal echocardiogram was used to make the diagnosis, but only after a week had gone by and the patient's condition had deteriorated despite aggressive intervention. An echocardiogram within 24 hours of admission, if not at the time of admission, should be regarded as an integral part of intensive care practice in such patients.

Clinician-performed "point of care" ultrasound examination is rapidly becoming a part of ICUs across Australasia. With a relatively short period of training and practice, doctors can gain a rudimentary level of competency in performing ultrasound and identify life-threatening or markedly abnormal conditions.² A basic echocardiogram in the case described would have relatively easily been able to detect the abnormality described and may have directed the clinicians to perform a formal echocardiogram more urgently, potentially expediting surgery.

Ultrasound provides a rapid non-invasive diagnostic and monitoring tool and also helps facilitate procedural safety

and efficacy. When integrated with other routine modalities of investigation and monitoring, it will aid in providing better patient care. With affordable mobile systems becoming readily and broadly available, basic critical care diagnostic and procedural ultrasound (Level 1 standard) should be considered a fundamental part of intensive care training.

Adequate hands-on experience is a vital part of learning, and availability of ongoing mentorship and feedback is an essential requirement. With more trainees and intensivists gaining basic and advanced knowledge in the field of critical care ultrasound, institution of ultrasound as a key part of the basic assessment of the ICU patient seems possible.

Sam Orde, Echo Fellow

Anthony S McLean, Intensive Care Physician

Department of Intensive Care Medicine, Nepean Hospital, Sydney, NSW, Australia.

samorde@hotmail.com

References

1. Gillon SA, Radford ST. Zebra in the intensive care unit: a metacognitive reflection on misdiagnosis. *Crit Care Resusc* 2012; 14: 216-20.
2. Mayo PH, Beaulieu Y, Doelken P, et al. American College of Chest Physicians/La Société de Réanimation de Langue Française statement on competence in critical care ultrasonography. *Chest* 2009; 135: 1050-60. □

IN REPLY: We thank Orde and McLean for their letter and agree wholeheartedly that routine critical care ultrasound is a laudable and achievable aim.

Intensivists are keen advocates for correct and timely diagnoses, and the use of bedside ultrasound including echocardiography can only assist in such endeavours. Waiting several days for formal echo studies (from busy and potentially overloaded hospital echocardiography services) to help differentiate clinical problems is at odds with such a position.

Our department is taking particular efforts to grow a competent echo and ultrasound service. We have appointed a leading senior practitioner who has championed an improved service, including quality control, consultant and registrar training and accreditation, and new imaging hardware; as well as dedicated hardware, space and time for co-reporting studies with suitably experienced intensivists and echocardiologists.

Our aim is to incorporate timely, relevant and reliable echo and ultrasound studies into the day-to-day workflow

of the intensive care unit. This could mean that any one of the key steps (initial assessment on arrival, consultant review, morning ward round) may include an ultrasound assessment. Perhaps the standard we should be striving for is the "top-to-toe" ultrasound scan within 24 hours described by Manno et al.¹

Once critical care ultrasound is ingrained as part of daily practice, the chances of missing a potentially reversible diagnosis, as in our case report,² should be significantly reduced.

Sam T Radford, Intensive Care Physician

Stuart A Gillon, Registrar

Department of Intensive Care, Austin Health, Melbourne, VIC, Australia.

sam.radford@austin.org.au

1. Manno E, Navarra M, Faccio L, et al. Deep impact of ultrasound in the intensive care unit: the "ICU-sound" protocol. *Anesthesiology* 2012; 117: 801-9.
2. Gillon SA, Radford ST. Zebra in the intensive care unit: a metacognitive reflection on misdiagnosis. *Crit Care Resusc* 2012; 14: 216-20. □