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Correspondence

Cardiac troponin in general adult critical care units

Cardiac Troponin T (cTnT) and I (cTnI) are the most sensitive and specific biochemical markers of myocardial injury available, but do not indicate the mechanism of such injury.[1] There are many problems with their interpretation in the critical care setting, as highlighted in the timely editorial by Dr. Worthley,[2] and we welcome it.

The editorial quotes various studies, including those showing association between elevated cTnI levels and mortality. After analysis of 346 samples measured over 22 months from our general adult Intensive Care Unit (annual admissions 850), we also found a statistical relationship between levels of elevated cTnI and both ICU and hospital mortality (Table 1) using Chi-square testing.

Due to the low specificity and positive predictive value of cTnI in mixed adult general critical care patients, it is difficult for us as Intensivists to place elevated troponin levels in their clinical context. We also have difficulty in using elevated troponin levels to influence patient management in the absence of a relevant history and ECG changes. Thrombolysis, ACE-inhibitors and beta-blockers can be doubled-edged swords in the critically ill, echocardiography in the resting patient provides scant meaningful information, a pulmonary artery catheter is invasive, and all this before we consider the risks associated with coronary angiography. Therefore, we believe that cardiac troponins in a general adult ICU should only be requested to confirm an acute coronary syndrome suspected or diagnosed on more traditional criteria. In the ICU setting, this would almost always entail confirming new ischaemic changes on ECG before requesting a cTnI level.

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Table 1. Relationship between levels of elevated troponin I, length of stay, APACHE II and mortality

Plasma cTnI	*<0.199µg/L*	*0.2-0.99µg/L*	*>1.0µg/L*	*p*
Patient number	67	149	125	
Median ICU LOS	6	5	4	ns
Median APACHE II	14	17	20	ns
ICU mortality (%)	13	39	51	< 0.01
Hospital mortality (%)	19	61	64	< 0.01

TnI = troponin I, LOS = Length of stay

ICU training experience in the UK

In choosing medicine as a career we are fortunate to have so many work opportunities at home and around the world. Overseas work and travel gives us the chance to broaden our medical and personal experience. As the medical environment in any one country (including our own, Australia) is relatively homogenous, the medical training of any individual may be limited by their national guidelines, experiences or even eccentricities. Consequently, the opportunity to experience differences in medical practice in other parts of the world can only challenge, develop and expand a career in Medicine.

For these reasons we decided to undertake a period of overseas training, with the intention of broadening our professional development. When researching the options available to Australian trainees it rapidly became obvious that the UK offered numerous advantages. Obviously language is not an issue (although we subsequently learned that at times Australian accents are apparently a little hard to understand!), and the Australian and UK systems are similar enough that integration into a new hospital is made easier for the individual and the employers. The reciprocal recognition between the various colleges in Australia and the UK also makes the experience credible from the perspective of training requirements. These benefits, and a shared attraction to the more challenging aspects of Medicine, led to our decision to pursue training posts in a critical care setting in the UK, and we were fortunate enough to be offered positions in the Department of Critical Care in Portsmouth.

Within days of taking up our appointments it became apparent that there were significant similarities between this unit structure and the Australian system, which offered us the advantage of being able to

integrate into the unit relatively easily. However, we also learned that there were enough differences between the UK and Australian medical systems to necessitate changes in our own medical practice, which we found challenging and extremely valuable. There is no doubt that our time in Portsmouth has been the most valuable experience in our medical training thus far.

One of the most notable differences we found was the expanded role of the Senior House Officer (SHO) over what we were accustomed to in Australia. For an SHO to participate all levels of patient care - from ward assessment, ICU admission, invasive procedures, treatment discussions and discharge decisions was novel to us. The opportunity to be involved at all levels, while at the same time receiving excellent consultant supervision, was invaluable. The large number of referrals to the ICU in the hospital increased our workload, (whether or not the patient is admitted to ICU), but there is no doubt that this provides an excellent means of reinforcing concepts, enhancing clinical judgment and procedural skills.

We were fortunate that the multidisciplinary ethos of the unit provided us with an exceptionally supportive and cohesive working environment. This gave us the chance to work alongside other trainees from different clinical specialties in the critical care environment, and helped to foster decision-making skills and to encourage self-motivated learning through increased responsibility. The educational opportunities were also excellent; with abundant formal teaching sessions, informal ward-based learning, opportunities to make presentations, and encouragement to complete an audit process. We developed an appreciation of the challenges faced by a system striving to serve a much greater population than in Australia, and were exposed to different practices designed to meet such challenges. The benefits of a long-term accredited training post such as we undertook - rather then a more short-term option such as a locum position (as appears to be the lot of many international doctors) - paid significant dividends in terms of education, continuity and work satisfaction.

We believe that many of the benefits we gained from working overseas in the UK would be mirrored by doctors (from the UK or elsewhere), who choose to spend time working in Australia. Working in a different system, with different cultural and environmental implications provides valuable experience and interesting challenges. In this context Australia offers a widely varied medical spectrum, with opportunities in institutions ranging from large tertiary centres to smaller regional hospitals. The latter, in particular, offer opportunities for increased involvement of junior staff and a chance to experience some of the more unique aspects of Australian life. The sheer size of Australia demands coordinated retrieval services, which in many respects are without parallel. The Royal Flying Doctor Service, Air-med Retrievals and local helicopter teams operate in different states to ensure safe transfer of critically unwell patients from rural and remote areas, and in some areas also provide the only medical care available to local communities. Australia, like the UK, has a diverse multicultural population, demanding sensitivity and flexibility in interactions with patients and families. Working with the indigenous population requires the development of an understanding and appreciation of the particular health challenges they face, but the results of doing so can be very rewarding.

Our time spent working in the UK has provided us with continued benefits; since our return to Australia we have had a universally-positive response from potential employers and colleagues who evidently appreciate the value of our time spent training overseas, particularly in the area of critical care. We thoroughly recommend the challenge and experience of taking up an international training opportunity as a sure means of enhancing a medical career as well as being a great personal experience.

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