Pre-hospital intubation in trauma: a cross-sectional study, Pietermaritzburg

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Research project

With stunning, sandy coastline to the east and the magnificent Drakensburg mountains to the west, Pietermaritzburg is the administrative capital of KwaZulu-Natal (KZN) and its second largest city after Durban. KZN is the most populous province in South Africa, and experiences a high burden of trauma. Geographical challenges and resource limitations dictate prolonged transfer times from peripheral rural hospitals to Pietermaritzburg, where intensive care and trauma surgery are available at both Edendale and Grey's public hospitals. Anecdotal evidence suggests that critically ill trauma patients who undergo pre-hospital intubation are susceptible to complications such as misplaced tube and aspiration pneumonia. However, current record keeping practices are inadequate to allow retrospective audit of this phenomenon in Pietermaritzburg.

In conjunction with local paramedics, emergency medics, intensivists and trauma surgeons, my elective project aimed to measure incidence of intubation-related complication in trauma patients in Pietermaritzburg and its drainage area, and to describe intubation practice in the pre-hospital and emergency department settings. After more than six months of preparation, including remotely negotiating the University of KZN's Biomedical Research Ethics Committee process, it was exciting to finally meet the faces behind the email correspondence and begin data collection.

Before starting, I delivered briefings to private and government-funded paramedic services and the emergency, surgical and intensive care departments at Edendale and Grey's. Referral hospitals were contacted, and the project was introduced at the multidisciplinary Pietermaritzburg Trauma Forum. Data collection ran parallel to my clinical attachment in the Edendale emergency department, and involved reminding and encouraging intubators to complete paper questionnaires for all eligible patients, collecting forms from both sites, communicating with staff at rural hospitals by telephone and email and following up subjects' progress at both hospitals. The project provided an opportunity to become involved in the patient pathway from roadside to ICU; as well as learning about clinical management, discussions surrounding the project offered useful insight into the challenges of both delivering trauma care, and of undertaking research in this setting. I look forward to reporting the results and sharing a full article in due course.

Clinical placement

On the emergency department 'shop floor,' I was involved in clerking, examining and working up patients triaged to Minors, writing notes and presenting cases to seniors along with a proposed management plan. In Majors, I assisted with resuscitation efforts and watched numerous diagnostic and therapeutic procedures including EFAST scans, endotracheal intubation, pericardiocentesis and the insertion of central, arterial and peritoneal dialysis lines. There was also plenty of opportunity to practise my own clinical skills, inserting catheters and venous cannulae ("jelcos"), taking and interpreting radial and femoral arterial gases, lumbar punctures, draining abscesses, suturing minor wounds, obtaining pleural taps and inserting chest drains. As well as a high volume of trauma, I encountered an abundance of tropical pathology including AIDS-defining illnesses, immune reconstitution inflammatory syndrome, schistosomiasis and neurocysticercosis.

'Extra-curricular' medical activities

Alongside my clinical attachment and data collection for the intubation study, I was fortunate enough to arrange a variety of medical experiences outside of the emergency department. I joined the Red Cross Air Mercy Service flying doctors on outreach; spent a week at Emmaus Hospital, a rural hospital in the Pietermaritzburg drainage area; shadowed paramedics in both ambulances and a rapid response vehicle (a Porsche Cayenne!) and gained some experience of private emergency medicine. When I wasn't on call, my weekends were spent engaged with events medicine – ranging from a professional surfing competition to mountain biking and trail running races through the Dusi Valley, Imfolozi Game Reserve and other stunning landscapes. I was also a member of the team manning the busy 128-bed medical tent at the finish line of the gruelling 56-mile Comrades Ultramarathon, where we saw over 400 patients – the vast majority in the final two hours of the race.

Final thoughts

I am enormously grateful to the AAGBI for supporting this stimulating and extremely rewarding elective placement and research project. It has been invigorating to learn and practise medicine away from the political troubles of the NHS, a temporary reprieve from our current uncertainties. Of course South African healthcare faces its own challenges, but visiting as an outsider made it simpler to dissociate myself from the politics and focus on pragmatic patient care.

I have returned to the UK with new insight into emergency airway management, trauma care and a refreshed appreciation of the joys of being a doctor. I have been inspired to return to South Africa after qualifying in order to work in a rural setting, gain further clinical experience, and contribute something to a country which has offered so much over this three month placement.