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Trauma anaesthesia: a new advent of peri-injury care

SAFE Paediatrics Malawi

Developing a peer-led Primary FRCA OSCE Course
Welcome to July’s issue of Anaesthesia News! By the time you read this the results of the General Election will be old news. Of course I am a neutral and am here purely to serve you, members of the Association, whatever your political persuasion. Even if I did have strong political leanings, I was instructed by my Trust senior management that while I represent them I must remain impartial, at least in public. However there are some members who think the AAGBI should be more politically active – what do you think?

In this issue we have the regular contributions that you all know (and love?) including Blogadder, Pieces, your letters, Anaesthesia Digested and the safety page curated by Dr Tim Meek, Chair of the AAGBI Safety Committee. In addition I encourage you to read the diverse and interesting articles. Dr Ker Wei Tan describes her experience of being an anxious mother during her child’s complicated pathway after a routine tonsillectomy. A group of anaesthetists from Dundee have developed a really useful strategy for monitoring and managing neuromuscular blockade. Both quantitative nerve stimulators and sugammadex are not always available and the authors share with us an approach that includes educational projects and audit in order to raise awareness and improve the management of neuromuscular blockade. Dr David Newby attended a fascinating course on human factors run by British Airways. Dr Robert Hart and Dr Sarah Sullivan describe their experience of organising a primary FRCA OSCE course, while further afield in Malawi, Dr Emma Sharkey was the first WFSaSAFE Paediatric Fellow and explains how she was involved in 3-day SAFE Paediatric Anaesthesia refresher courses. Dr Breda O’Neill from the Royal London Hospital tells us how she and her colleagues provide expert clinical care to patients of all ages who have experienced complex trauma. Finally there are reports from James Crookall and Catherine Snail who attended the 41st AAGBI Linkman Conference in September 2016. If you are a Linkman and have never been to one of these meetings then hopefully these reports will encourage you to attend this year’s on 26 September in Liverpool.

So, something for everybody and I am sure you will agree these are all examples of articles that this publication has been doing pretty well for the last 30 years.

However, voices of discontent have recently been heard around Great Britain and Ireland, claiming that we publish too many stories of trainees working abroad, that there are too many advertisements for courses and refresher courses. Dr Breda O’Neill from the Royal London Hospital tells us how she and her colleagues provide expert clinical care to patients of all ages who have experienced complex trauma. Finally there are reports from James Crookall and Catherine Snail who attended the 41st AAGBI Linkman Conference in September 2016. If you are a Linkman and have never been to one of these meetings then hopefully these reports will encourage you to attend this year’s on 26 September in Liverpool.

In the meantime, I do hope you enjoy this issue while having a wonderful summer!

Dr Craig Bailey
Elected AAGBI Council Member

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Editorial

Your letters

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Care of those who have sustained serious trauma opens up a huge challenge to anyone involved in their acute and ongoing management. This daily challenge is embraced by a cross section of specialists who work in Major Trauma Centres, and their associated networks, within London and regional trauma systems. The Royal London Hospital Barts Health is the largest of the four associated networks, within London and regional trauma systems. In 2015, received in excess of 3,000 trauma activations, almost 25% of which had an injury severity score of > 15. [1] The RLH hosts the bond between the clinical and academic environments and we acknowledge my colleagues’ contribution to this service and thank those who invested in this innovative project.

A business plan was agreed for a group of ten consultant anaesthetists to deliver specialist trauma care, which in the first instance would cover Monday to Friday daytime/evening hours. Although work within an experienced trauma department, our aim was to focus on improved pathways of management, with development of individual areas of specialist interest. Clinically, our aim was to attend all trauma calls irrespective of severity, manage complex resuscitations, facilitate decision making in more challenging cases and improve both flow and pathways of care from the emergency department to theatres or critical care. We recognised that the recovery from complex trauma requires not only immediate senior assessment and resuscitation but ongoing coordinated care, skillful pain management and rehabilitation. It is this team focus on refinement of processes along the entire trauma pathway that makes a difference to recovery and complications secondary to pre-existing morbidty.

As a group of anaesthetists working within the Royal London Hospital, we recognised the need to address the above concepts, both in terms of immediate resuscitation and longer-term care. We therefore embraced the concept of developing trauma anaesthesia as a specialty, which would support not only immediate resuscitation, but also peri-injury care for all patients who present via tiered levels of trauma call. Our aims are similar to those who embrace the concept of developing trauma anaesthesia.

We recognised the need to address the above concepts, both in terms of immediate resuscitation and longer-term care. This advanced pain management plan is model is being prospectively audited with emphasis being placed on reduced ventilatory time and early rehabilitation following amputation, both of which affect length of stay. An active programme of multidisciplinary teaching evidently supports the introduction of this service.

In conjunction with transfusion, our programme has incorporated advice on judicious use of blood products and ways of minimising waste. Specialist interest within the group has enabled us to introduce ROTEM in regular practice with consultant anaesthetic staff to ensure appropriate use of this service. The decision regarding use of ROTEM complements the input of the research team overseeing the ITAC trial [4].

**References**


**Breda O’Neill**
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**Trauma anaesthesia:**

**a new advent of peri-injury care**

**Trauma anaesthesia**

**and peri-operative care**

**Trauma anaesthesia at the Royal London Hospital**

Within our institution, complex trauma patients are managed collectively in a ‘polytrauma’ ward environment under the supervision of a trauma surgeon. This service to date has been complemented by consultant anaesthetic input to the ward rounds, in addition to care delivered by other allied health professionals and specialist teams. With over 250 tiered trauma calls per month, we were conscious of gaps in delivery of care to such a large cohort of patients. The challenge to prioritise pathways of care was our challenge, and indeed remains huge.

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**Innovations**

A number of projects have evolved since the introduction of this service. One of our key achievements has been the launch a peripheral catheter service in both the emergency department and theatre. We recognised that continuous peripheral nerve blocks provide safe and effective opiate sparing pain control and are an established practice within the military service, providing a superior level of analgesia. Although these catheters were initially utilised in traumatic amputation, we have utilised these same catheters in patients who have undergone emergency thoracotomy, again providing effective pain control [2,3]. The focus of a dedicated team has also seen an increase in the delivery of epidurals and paravertebral blocks; particularly significant for respiratory management and pain control in thoracic trauma.

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Major haemorrhage control and learning through simulation

Another area of focus has been the management of paediatric and adult major haemorrhage, both clinically and in terms of flow to theatres. In conjunction with our haematology and Queen Mary University of London (QMUL) colleagues we have looked at current practice and updated our major haemorrhage protocols, ensuring that these are based on current best evidence. Using in situ simulation to rehearse major haemorrhage pathways, we have also incorporated aspects of teamwork and communication into both our paediatric and adult major haemorrhage protocols.

In conjuction with transfusion, our programme has incorporated advice on judicious use of blood products and ways of minimising waste. Specialist interest within the group has enabled us to introduce ROTEM in regular practice with consultant anaesthetic staff to ensure appropriate use of this service. The decision regarding use of ROTEM complements the input of the research team overseeing the ITAC trial [4].

**Education**

The focus of this group has allowed us to address education of colleagues and trainees who work frequently within the service, with plans afoot to develop educational programmes for anaesthetic nurses and operating department practitioners. We have had Honorary Senior Lecturer positions granted at QMUL, strengthening the bond between the clinical and academic environments and we have had the opportunity to engage with external groups shaping the future of trauma management. All of this progress is shared with our colleagues via regular bulletins, available both online and within the department.

**Paediatric trauma**

A significant amount of work has been put into development of paediatric trauma within the umbrella of our service. We appointed a paediatric Darzi fellow who is currently working with paediatric and adult colleagues in both leadership projects and review of service provision. A paediatric fellow is supporting this work with a specific interest in trauma.

**Conclusion**

This initiative has embraced many aspects of trauma management in our diverse and complicated specialty, and continues to do so. The primary aim has been delivery of expert care to patients of all ages who have experienced complex acute traumatic injury. Our focus is not just at the point of entry but along the entire patient pathway. It reaches beyond the recommendations and looks towards a future where peri-injury management of patients with complex trauma becomes an absolute requirement. I would like to acknowledge my colleagues’ contribution to this service and thank those who invested in this innovative project.
SAFE Paediatrics Malawi

SAFE Paediatric Anaesthesia is a three-day refresher course which covers key areas in paediatric anaesthesia. I spent six months in Malawi as the first WFSA/AAGBI SAFE Paediatric Fellow, providing paediatric anaesthesia as well as helping to organise two SAFE Paediatric courses, before following up course delegates to assess the usefulness of course and its applicability in Malawi.

Twenty-four hours after finishing a theatre list in a central London hospital I stepped out into the dry heat of the Malawian spring. A taxi whisked me through the sunny haze to Blantyre, the second largest city in Malawi, and my home for the next six months. A power blackout that evening made for an entertaining attempt at making dinner by candlelight – something I was soon to get used to. The following morning, I attended morning report for all the anaesthetists at Queen Elizabeth Central Hospital. A whistle-stop tour of the theatre and ICU complex was conducted by one of the senior anaesthetic clinical officers before I was shown to my place of work, the daily difficulties they faced and the most effective solutions they had found. Dr Emma Sharkey Anaesthetic registrar, Royal Free Hospital, Hampstead and WFSA/AAGBI SAFE Fellow funded by THET HPS funding.

The majority (96%) of attendees felt more confident in communicating with other team members:

- There was a child in theatre who developed bradycardia. Previously I would have given atropine. After the course, I told the surgeon and he stopped retraction. The HR returned to normal and I did not have to give any drugs. I think my communication has improved a lot.

As I continued my journey through Malawi I was welcomed by similar stories – difficulties with monitoring and access to equipment and drugs were told at all hospitals. However, in spite of these challenges the enthusiasm for learning shown by most of the clinicians I met made my six month OOPE a real privilege and I could not recommend it highly enough. The skills I have developed in both leadership and clinical care will make me a more effective doctor within the NHS as well as hopefully aiding my transition to consultant.

‘Fluid management – previously I would just hang a litre bag. Several times the child ballooned. Once the child was really struggling to breathe and really ballooned. They were going to refer to KCH. When I saw I knew it was fluid overload. I kept the child and gave furosemide. Now I calculate my bolus and make sure fluid is taken down before they go back to the ward.

The first faculty was a mixed Malawian, Kenyan and UK team which allowed a train-the-trainer course to be run after the first course to enable the development of a stronger Malawian faculty. The two courses ran very smoothly – we trained 51 ACOs with very positive feedback and a significant increase in assessed knowledge and skills tests. As I dropped the UK faculty back at the airport a massive wave of homesickness overwhelmed me. I was very glad to head back to work and bury myself in clinical care for a few days.

Arriving back energised from a safari through the Serengeti – all in the name of getting my three-month visa renewed, of course – I started to plan my visits to the district hospitals. I was apprehensive, worrying about being asked to help with unfamiliar equipment and resource limitations even greater than the ones I had, unfortunately, become accustomed to in Blantyre. The lead physician anaesthetist taught me many things before I set off. This included how to drive in mud as the rainy season was setting in, candid advice about snake bites, storms and staying away from the mountains due to old tales of spirits!

I soon forgot these dire warnings as the beautiful Malawian landscape unfolded in front of me. I interviewed 44 of the SAFE Paediatric delegates. All were incredibly warm and welcoming, eager to show me their place of work, the daily difficulties they faced to provide clinical care and the changes they had made to their clinical practice after the course. Many positive changes in practice were reported. The recognition by delegates that:

- simple things can improve safety – makes me want to improve the standards in my theatre.
- ‘simple things can improve safety – makes me want to improve the standards in my theatre.’

showed how the ACOs had understood the message the SAFE Paediatric course was trying to impart. Delegates were asked about any changes they had made in both their clinical and non-clinical care and 84% reported improvements in the care of a child with examples such as:

- Furosemide. Now I calculate my bolus and make sure fluid is taken down before they go back to the ward.

The list did not seem too complicated – all children of varying ages for simple procedures such as inguinal hernia repairs and examinations under anaesthesia. Thankfully, the big case for the day, a Wilms’ tumour resection, had been cancelled due to lack of blood. The familiar routine of gas induction followed by cannulation, without the ubiquitous anaesthetic assistant I was so used to, tested my cannulation skills on chubby hands. The Malawian surgeon took pity on me struggling to cannulate a 4-year-old, and together we anaesthetised and cannulated the rest of the patients for the list, showing me how universal medical language and teamwork are.

Fridays were ‘scrubbing’ days in theatre, providing a respite from clinical practice and allowed me to meet the head of the department for the first time. He provided me with an overview of anaesthesia in Malawi. In total, there are four physician anaesthetists and 197 anaesthetic clinical officers (ACOs), who provide the majority of patient care. The clinical officers typically have between six months and two years of training before being posted to a government hospital in one of the districts. My SAFE Paediatric Fellowship involved helping to run two SAFE Paediatric courses and then follow up with delegates in their place of work as part of a THET funded project. SAFE Paediatrics is a three-day refresher course covering the basics of paediatric anaesthesia. The two courses were scheduled to run back to back six weeks after my arrival. The course venue had already been determined – a mountain retreat covering the basics of paediatric anaesthesia. The two courses were scheduled to run back to back six weeks after my arrival. The course venue had already been determined – a mountain retreat – to ensure delegates were focused on the course rather than potentially distracting private practice commitments.

Amazingly, the organisation for the course was relatively straightforward. ACOs were contacted via WhatsApp to invite them to attend and the confirmation list grew rapidly. Unfortunately, the presentations and course material files were difficult to download – for three weeks my evenings were spent desperately trying to connect to the internet between blackouts. Once the materials were all finally downloaded the hunt to find a printer began, and the physical materials were finally ready the day before the courses began.
The AAGBI are excited to launch SAFE Africa

- A two-year fundraising campaign to raise £100,000, which will enable the delivery of sustainable training in essential lifesaving obstetric and paediatric techniques to 200 anaesthesia providers in Africa.
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In 2016 I attended my first Linkman conference as a Trainee Network Lead (TNL). It turned out I was the only trainee in attendance, other than the GAT Committee members. I felt rather privileged to be listening to and contributing to the discussions, but also felt that other TNLs were both missed and missing out as much of the programme was of real relevance to trainees.

Nancy Redfern introduced the first session of the day with the central theme being fatigue. Fatigue is something very familiar to me thanks to shift work, a lengthy commute and a young family. Familiar also to most of the people in the room but until recently not much talked about, perhaps because we accept it as part of the job. However, some of the facts presented about fatigue were rather eye-opening (sorry!).

For example, ‘21 hours continuously awake is comparable to a blood alcohol level > 0.1% (legal limit 0.08%, 0.05% in Scotland)’. I regularly drive home in this state after a night shift. ‘Two weeks of sleep deprivation is equivalent to a night without sleep’. That’s quite a deficit I have accumulated in the last few years. ‘When woken from sleep, sleep inertia can last 30 minutes or more’. No surprise then that consultants on call at night often say ‘call me back if I don’t make sense’. Our ability to think analytically and to make decisions is affected by fatigue, posing a real risk to patient care. It was clear during the later group discussions that the central theme being fatigue. Fatigue is something very familiar to me thanks to shift work, a lengthy commute and a young family. Familiar also to most of the people in the room but until recently not much talked about, perhaps because we accept it as part of the job. However, some of the facts presented about fatigue were rather eye-opening (sorry!).

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The afternoon session had the lighter title, ‘Opportunities’, and focused on the future strategy of the AAGBI and the roles of Linkman and trainee leaders in helping to engage the membership. We agreed that alongside their significant roles in safety, education, research, the AAGBI should emphasise and develop its role in areas of wellbeing such as those discussed earlier in the day, particularly given the current morale within the NHS. This seems to be reflected in the Association’s recently published Long-Term Strategy.

Before the audience was tempted away by the aroma of dinner from the adjoining restaurant, we were given an update on the consultant contract negotiations and the dire situation in many areas with rotas gaps and escalating locum costs. More troubling was the evidence of changing culture in the NHS to avoid complaints or regulatory proceedings. The RCIA now refer to the GMC, regardless of outcome, and that the process is a national conference where we can meet and discuss our issues with a variety of practising anaesthetists. For example, if you have a problem with staffing on your rota, maybe the guy sitting across the table from you has some useful advice on how their department found a strategy to deal with a similar problem.

After joining the AAGBI in 2016 and setting off to attend the Linkman and Trainee Network Leaders’ (TNLs) meeting, I had an idea of what to expect, but was wrong. The AAGBI holds a conference for all the Little people from hospitals and Trusts throughout the UK and Ireland. This annual event is open to all AAGBI Linkman & TNLs, the day carries 5 external CPD points and happens the day before Annual Congress.

Every Trust and hospital should have a Linkman or be in a position to appoint one. If you cannot make it, then why not send a suitable substitute along in your place? Dr Tim Bennett is the appointed Linkman for the Southern Health & Social Care Trust in Northern Ireland and asked me to go along to the meeting.

The format of the day was not as expected. Where were the rows of chairs? Why were we all sitting at round tables? And are they going to leave those large coffee pots? A warm and relaxed welcome from the incoming president of the AAGBI, Dr Paul Guppy, and Dr Nancy Redfern set the tone for the rest of the conference. From opening to closing addresses the day was educational, worthwhile and enjoyable. The topics covered are only a part of the story. Undoubtedly most of you get to chat to your colleagues within your department over a cup of coffee. Some of you get to extend that conversation to a local level. This is a national conference where we see and discuss our issues with a variety of practising anaesthetists. For example, if you have a problem with staffing on your rota, maybe the guy sitting across the table from you has some useful advice on how their department found a strategy to deal with a similar problem.

The RCIA sets the standards for training, the GMC protects the general public from us, our defence unions insure us and the AAGBI allows us to meet with our professional family.

Aside from the membership fee (which is apparently tax deductible as a professional expense) the Association does offer some worthwhile benefits. Insurance cover for inter-hospital transfers, discounted rates at meetings and events, access to e-learning material and membership of an association designed by anaesthetists for anaesthetists, subscriptions to Anaesthesia and Anaesthesia News. The updated Linkman/AAGBI has an online CPD section that allows you to keep a contemporaneous reflection of an event as you attend. A useful addition to any annual appraisal folder.

Quality improvement, revalidation and appraisal are everyday considerations. The markers by which we judge quality are ever changing and need to be set, validated and appraised. As a professional association we are best placed to set those markers by which we are judged. All of us practising anaesthetists will probably have an opinion on each of the topics covered both formally and informally throughout the course of the day. So why not come along to Liverpool in September and join in the discussion at a national level with people who at least give the impression that they really are there to listen and help shape anaesthetics for anaesthetists.

James Crockett
Specialist Doctor in Anaesthesia, Daisy Hill Hospital, Newry
We meet all varieties of patients; some visibly nervous, others sanguine. I used to see anxiety as something to be managed or medicated and had never needed to pay much attention to what it felt like from the other side.

Until my 3-year-old son needed a tonsillectomy. My husband and I had arranged time off (just a day each would be enough) and my son had his bag packed with his favourite toys for a sleepover at the hospital, looking forward to the prospect of sweets, and Christmas soon after. Even as I type this my heart tightens with dread at all he would have to go through over the next few weeks, and I have to force the flashbacks away.

The tonsillectomy itself went uneventfully, but that evening he became inconsolable and was choking on whatever blood he was unable to swallow. He went back to theatre, and we were left in a four-bed bay with other post-tonsillectomy patients – but without our own.

The charge nurse closed the curtain around us and made us cups of tea, giving us privacy in our dazed state, a gesture of kindness which we appreciated. He was put on the ventilator, and we were left to go about our business and allow others to care for us as well.

The day came to remove the packs, and we were overjoyed to hear there was good haemostasis. He returned to PICU and was prepared for extubation while we waited eagerly to have our son back again. We were called back in soon after as he was very distressed, and were asked to help soothe him while they gave him nebulised adrenaline. The situation quickly deteriorated. He developed complete airway obstruction and had a respiratory arrest.

By now, our son was petrified of hospitals. His veins were gone, he screamed if anyone came near him, he associated hospital staff with pain and fear. We were exhausted from weeks of not sleeping, and the worry of ongoing bleeding – he had already been back to theatre twice – what was next? Haematological investigations did not reveal anything actionable, and he continued to bleed on and off while monitored in hospital. Finally it was decided he should return to theatre for packing and a period of time in paediatric intensive care.

We made our way back to theatre again. He cried when he walked into theatre, clinging to me and sobbing that he had had his operation and that he did not need to go back again. It was a small relief to walk out and thereafter to see him in PICU, knowing that he was anaesthetised and unaware, while allowing things to heal. The wrenching loneliness of leaving the hospital without him, the wrongness of it all – that washed over whatever relief we had felt, and sleep did not come any easier despite the fact that I didn’t need to watch over him at night. The knowledge and familiarity of an intensive care unit did not make it any easier to bear; if anything it made it worse.

The feeling of utter helplessness and distress as the crash call was made, seeing him bradycardic and blue, is one that will never leave me. I forced myself to leave, and trust he would be cared for. The respiratory arrest was thought to be due to subglottic oedema, with subglottic laryngospasm. He was intubated, sedated and given several days of steroids, paralysed and sedated before a planned deep extubation in theatre. He had a chest infection, and an already skinny child became thinner and sunken. When he was finally extubated he was so weak he couldn’t hold his head up or cough, and so delirious that all he could croak was ‘No!!’ and ‘Mum!’, but just to hear his voice was the sweetest gift to me.

We were deeply thankful we were allowed home, three days before Christmas, three weeks after his initial operation. It took weeks for him to be strong enough to go up stairs, and for him to allow us to leave him alone at night. Every day he would say he didn’t want to go back to hospital. We had no choice but to journey through this, and to lean on our faith in God and the supporting prayers of people from around the world. It has given me some insight and a newfound respect for patients and their families; some visibly nervous, others sanguine. We meet all varieties of patients; some visibly nervous, others sanguine. I used to see anxiety as something to be managed or medicated and had never needed to pay much attention to what it felt like from the other side.

Above all, we were thankful. The NHS has flaws aplenty, but we are so grateful for how our son received all his treatment without restraint, which is far from the case in other countries. And we are grateful that this ended with a good outcome.

No routine operation

By now, our son was petrified of hospitals. His veins were gone, he screamed if anyone came near him, he associated hospital staff with pain and fear. We were exhausted from weeks of not sleeping, and the worry of ongoing bleeding – he had already been back to theatre twice – what was next? Haematological investigations did not reveal anything actionable, and he continued to bleed on and off while monitored in hospital. Finally it was decided he should return to theatre for packing and a period of time in paediatric intensive care.

We made our way back to theatre again. He cried when he walked into theatre, clinging to me and sobbing that he had had his operation and that he did not need to go back again. It was a small relief to walk out and thereafter to see him in PICU, knowing that he was anaesthetised and unaware, while allowing things to heal. The wrenching loneliness of leaving the hospital without him, the wrongness of it all – that washed over whatever relief we had felt, and sleep did not come any easier despite the fact that I didn’t need to watch over him at night. The knowledge and familiarity of an intensive care unit did not make it any easier to bear; if anything it made it worse.

The feeling of utter helplessness and distress as the crash call was made, seeing him bradycardic and blue, is one that will never leave me. I forced myself to leave, and trust he would be cared for. The respiratory arrest was thought to be due to subglottic oedema, with subglottic laryngospasm. He was intubated, sedated and given several days of steroids, paralysed and sedated before a planned deep extubation in theatre. He had a chest infection, and an already skinny child became thinner and sunken. When he was finally extubated he was so weak he couldn’t hold his head up or cough, and so delirious that all he could croak was ‘No!!’ and ‘Mum!’, but just to hear his voice was the sweetest gift to me.

We were deeply thankful we were allowed home, three days before Christmas, three weeks after his initial operation. It took weeks for him to be strong enough to go up stairs, and for him to allow us to leave him alone at night. Every day he would say he didn’t want to go back to hospital. We had no choice but to journey through this, and to lean on our faith in God and the supporting prayers of people from around the world. It has given me some insight and a newfound respect for patients and their families; some visibly nervous, others sanguine. We meet all varieties of patients; some visibly nervous, others sanguine. I used to see anxiety as something to be managed or medicated and had never needed to pay much attention to what it felt like from the other side.

Above all, we were thankful. The NHS has flaws aplenty, but we are so grateful for how our son received all his treatment without restraint, which is far from the case in other countries. And we are grateful that this ended with a good outcome.

Now he is back at nursery, putting on weight, and getting stronger, and I hope the memories will fade. We are back at work, and normality feels like an achievement. But for the patients we meet every day at work, their lives may have been changed irrevocably and are no longer normal. We see them fleetingy, and rarely more than once. In these short encounters, I hope they experience kindness, honesty, and the feeling that they are worth our time.
It happens around this time every year. Like hefty skunks in Disney springtime, the summer too brings its special whiffs. I refer, of course, to sweat. Or perspiration if you’re a horse. Having cautiously emerged from my duvet (do we have to go back to blankets after B*xit?), I note that it’s not too cold. Confirmation comes when I see that today’s Daily Trumpet says it’s the 3rd of July – Independence Day – so this must be summer and I’m out of excuses. On with the Lyra and off down to the bus stop. Almost out of excuses – apparently I’ve had a puncture. Like the muscle-bound pharmaceutical trialists in the Tour de France, I can’t lose. Tee hee hee. I should get kudos for trying and sympathy for deuced bad luck. Apart from the strange looks at the bus stop (what’s new?) it’s ‘Game Blogadder!’

Now that’s more my type of sport. I’m sitting on the lawn with a G&T, the parasol shading my iPad as I watch Wimbledon – that annual re-enactment of the events of 1603 when the King of Scotland was invited to take over the Crown of England. Then at the post coronation celebrations, held in a field 19 miles SW of London, a special new drink was unveiled made of fermented pears. King James is today represented by Sir Andy the First. The First since Perry.

I’m thinking of doing panto darlings...

Later in July we have the Open golf. Sadly the field will be much depleted this year. The Americans will not be coming following Prime Minister May’s controversial travel ban on people from a range of countries which openly espouse ridiculous sports. The Americans’ football and rounders are the most egregious offenders. Australians, Indians, Pakistanis and Sri Lankans will be admitted but only because cricket is exempted. Aussie football, Kabaddi, Kite fighting and elephant batting are awaiting assessment so the situation may change. The golfers from the countries of the former EU will be avoiding the UK for fear of being mobbed by politicians desperate to sign them up for individual trade deals, exchanging golf balls for British (formerly Brussels) sprouts on a two for one basis (The Buy Our Grim Outlook Forecast model). Of course predictions about the economic effects of believing what you read on the side of a bus can go up as well as down. Equally, predictions (conceived is my middle name) regarding who’s going to win the Open are likely to be difficult, even though the list of likely entrants will be restricted to mostly Brits – could this be Monty’s year? No, you’re probably right.

One can still go outdoors for reasons other than sport. There’s T in the Park. Younger readers are invited to imagine the picture of joy I radiated when I discovered that this was not a picnic but some sort of dystopian nightmare involving a colloid hydrogel made of cow turds and processed lager in which one can flounder while suffering an auditory assault by a series of tunes which, by the way, all sound the same. These are played at volumes measured on the Richter scale and which seem to create gravitational waves in the sludge, making escape difficult. Thank goodness for the iPhone and winceagram (other popular video outlets are available). Apparently people online ‘liked’ me a lot. Some even suggested a future as a stand up comic. Sarcasm. It is so difficult to balance when using your fingers to protect your middle ear from exploding and your numb proprioceptors are feeding you misleading information. Mrs B says it’s a very funny clip. I can’t wait for winter.
The Evelyn Baker award was instigated by Dr Margaret Branthwaite in 1998, dedicated to the memory of one of her former patients at the Royal Brompton Hospital. The award is made for outstanding clinical competence, recognising the ‘unsung heroes’ of clinical anaesthesia and related practice. The defining characteristics of clinical competence are deemed to be technical proficiency, consistently reliable clinical judgement and wisdom and skill in communicating with patients, their relatives and colleagues. The ability to train and enthuse trainee colleagues is seen as an integral part of communication skill, extending beyond formal teaching of academic presentation.

Nominations are now invited for the award, which will be presented at WSM London in January 2018. Members of the AAGBI can nominate any practising anaesthetist who is also a member of the Association. Nominees should normally still be in clinical practice. The award is unlikely to be in possession of a national award. Members of the AAGBI can nominate any practising anaesthetist who is also a member of the Association. Nominees should normally still be in clinical practice. The award is unlikely to be in possession of a national award.

The nomination, accompanied by a letter of recommendation, should be sent to the Honorary Secretary at HonSecretary@aagbi.org by 17:00 on Friday 21 July 2017.

The nomintaion, accompanied by a letter of recommendation, should be sent to the Honorary Secretary at HonSecretary@aagbi.org by 17:00 on Friday 21 July 2017.
Dear Editor

We report on an incident of an apparent alarm failure in a Mindray T8 monitor (Mindray, Shenzhen, China) that could potentially have led to the delivery of a hypoxic mixture to a patient. Our anaesthetic machine and monitors (Datex-Ohmeda Aestiva/5 and Mindray, respectively) are checked in accordance with AAGBI guidelines [1]. During the machine check a problem was identified with the hypoxic guard within the Aestiva/5 machine – a mechanical link to the guard within the Aestiva/5 machine. We were able to generate a nitrogen concentration of 14% and a nitrous oxide concentration of 86% within the breathing system despite the lower and higher alarm limit being set at 21% and 75% (Figure 3). The Aestiva/5 oxygen alarm did not alert correctly. However, not all anaesthetic machines have an independent oxygen analyser.

We continued to test both machine and monitor while ventilating the circle breathing system with a 3-liter reservoir bag while allowing only nitrous oxide to flow and were surprised to observe that Mindray gas monitoring alarms were not triggered despite appropriate alarm settings (Figure 2). We were able to generate an oxygen concentration of 14% and a nitrous oxide concentration of 84% within the breathing system despite the respective lower and higher alarm limit being set at 21% and 75% (Figure 3). The Aestiva/5 oxygen alarm did alert correctly. However, not all anaesthetic machines have an independent oxygen analyser.

Fortuitously, a Mindray representative was present on-site and the issue was referred to the company’s technical support for comment. The Aestiva machine was removed and the monitoring investigated by our Medical Physics Department. The incident was reported both locally at departmental level, to our Trust Medical Devices Committee and nationally to the Incident Reporting and Investigation Centre – a part of NHS National Services Scotland.

The company confirmed our observations. They stated this is not an alarm failure but a purposely designed ‘smart’ alarm strategy to reduce false alarms when the patient is not connected to the breathing circuit and so meets the requirements of ISO 80601-2-55, clause 208.6.1.2 [2]. By design, in the T8 monitor the respiratory gas alarms will be suspended until five continuous CO2 waveforms have been detected with an interval of less than 60 seconds between two neighbouring waveforms. The monitor determines when a patient is connected by measuring differences between inspired and expired gas concentrations. They also contended this ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths – and the ‘smart’ strategy will not cause clinical harm because the period of breathing a potentially hypoxic mixture will be short – approximately 5 breaths. The FiO2 is still displayed on the screen.

In summary, we have shown that the use of an intelligent alarm may unintentionally negate appropriately set user alarm limits prior to use with a patient attached to the breathing system. This is a latent error which in combination with machine and human error allows the generation of a hypoxic mixture within a circle breathing system that could then be delivered to a patient before the Mindray T8 alarms are triggered after a delay. The user manual should be corrected to make this explicit and other users of this monitor informed. The case highlights the importance of awareness of limitations of monitor performance and clinical vigilance despite anaesthetic machine checks and setting appropriate alarm limits.

Gilly Fleming
CT2 Anaesthetics, South East Scotland Deanery
Simon Rowbottom
Consultant Anaesthetist, St John’s Hospital, Livingston

References

From the editor:
A report of the incident described has been submitted to the appropriate reporting authority and has also been highlighted, via the AAGBI Standards Committee, to the standard setting authorities for consideration. This story highlights the importance of reading user instructions for devices, something which we do not always prioritise, but also highlights the responsibility on manufacturers to write full and easily digestible instructions for use. Finally, it demonstrates the important role clinicians have in feeding information back to standard setting community.
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Developing a peer-led Primary FRCA OSCE Course

Informal peer support is common practice within medicine, particularly in anaesthesia. Postgraduate anaesthetic examinations are particularly challenging, therefore it is only natural we explore how other trainees study to try and improve current preparation for this difficult examination.

The Primary Examination of the Fellowship of the Royal College of Anaesthetists (Primary FRCA) [1] must be obtained before core anaesthetic trainees can apply for ST3 training posts. It is composed of three elements:
- Multiple Choice Paper (MCQ)
- OSCE
- Short oral examination (SOE)

A pass must be achieved in all elements before candidates are awarded their Primary FRCA certificate. The Primary FRCA is a notoriously difficult examination and a challenge for trainees to prepare for. Of the above examinations, the OSCE component is often the one trainees find most difficult when it comes to preparation. Many candidates describe feeling unprepared for the OSCE as much of their revision has focused on the MCQ and SOE elements; unsurprising as SOE and MCQ practice is easy to obtain in most hospitals during the routine working week.

The Primary FRCA OSCE is composed of 18 stations, each of 5-minute duration. There is a wide variation in station content including anatomy, radiology, communication, equipment, critical incident simulation, technical skills, and resuscitation. Candidates complete all stations in a circuit with 1-minute intervals between stations. Each station requires an examiner, individual resources and marking sheets as well enough staff to coordinate the movement of candidates. In addition, some stations utilise medium-fidelity simulation and simulated patients/actors [2]. Therefore, the very nature of the OSCE makes it very difficult for individual anaesthetic departments to provide a realistic mock experience for trainees.

In preparing for our Primary FRCA we were fortunate to have available to us the resources at KMEC, a purpose-built training centre to support both undergraduate and postgraduate training within NHS Lanarkshire. This centre already supports postgraduate training in anaesthesia by delivering theatre simulation days, failed RSI drills, ICU emergency simulation and airway courses.

We were able to utilise the existing resources at KMEC to construct our own OSCE practise, making use of the anaesthetic equipment and medium-fidelity simulator to practice common exam scenarios. We were able to run through critical incidents, check the anaesthetic machine and Bain circuits, practise clinical examination and describe the uses of different equipment.

We felt strongly that this contributed to our success in this examination and believed other trainees could benefit from a ‘Lanarkshire Mock OSCE’ at KMEC. We sought help from the medical education team and consultant anaesthetists who have an interest in education to help develop a peer-led mock OSCE and formalised examination preparation techniques.

The aims of creating a peer-led mock Primary FRCA OSCE:
- To improve current preparation for the Primary FRCA OSCE in our region
- To increase trainees’ confidence for sitting the exam
- To gain experience of developing a training course
- To improve current preparation for the Primary FRCA OSCE in our region
- To share our experiences with other trainees
- To gain experience of developing a training course

We carried out a literature review examining ‘Benefits of simulated clinical practice prior to OSCE examination’. We pooled our own experience of the exam and that of other trainees, and constructed a bank of mock examination scenarios closely mapped to those that appear in the Primary FRCA OSCE, in conjunction with the RCoA curriculum and available literature [3,4]. Scenarios included: airway examination, anatomy and radiology stations, critical incidents, communication and history stations. We devised and produced resources for each station including marking sheets, diagrams, actors, equipment and signage, and recruited local consultants with an interest in education to form our faculty. Although the design, preparation and coordination of the OSCE is peer-delivered, we felt OSCE examiners should be provided by consultants in order to ensure a degree of credibility to the course.
Members of our faculty also had expertise in medium to high-fidelity simulation to facilitate the critical incident scenarios [5]. Course experience and pre/post confidence questionnaires were used to evaluate the course.

The course was widely advertised and aimed at core anaesthetic trainees who had recently passed their Primary FRCA MCQ examination and therefore eligible to sit the OSCE.

We launched our first pilot in October 2014 and a further course in January 2016. On both occasions we successfully delivered our peer-led OSCE sessions to eight candidates. The OSCE sessions ran smoothly and candidates commented on the realistic exam conditions. Both sessions exposed four candidates to 12 stations, which included medium-fidelity simulation scenarios such as failed RSI and anaesthesia. Confidence questionnaires demonstrated enhanced confidence in all assessed areas (Table 1).

All candidates said they would recommend the course as it allowed effective exam preparation. A post course faculty meeting was held, which was helpful in identifying minor logistical problems that will be addressed to streamline and improve future courses.

The FRCA OSCE is an important assessment tool in the postgraduate clinical laboratory.

Anatomy 1.5 2.4
Equipment 2.6 2.8
Resuscitation and Simulation 2.6 3.3
History and Communication 3.2 3.2
Examination skills 2.8 3.3
Confidence in sitting the OSCE in general 1.9 3.0

Table 1. Confidence questionnaire results utilising a 0-5 visual analogue score (0 = not confident, 5 = very confident) naïve and non-naïve candidates.

References

Acknowledgements
Our thanks to Dr Catherine Paton, Clinical Skills Consultant, Kirklands Medical Education Centre, Dr Caroline Martin, Clinical Skills Facilitator, KMEC, and Dr Tina McLellan, Consultant Anaesthetist, Hairmyres Hospital, Lanarkshire.

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A journey: an evolving strategy for neuromuscular blockade

We would like to share our experiences of developing a departmental approach to the management of neuromuscular blockade (NMB). The last decade has seen the introduction of sugammadex, a novel NMB reversal agent, and increasing availability of quantitative peripheral nerve stimulator monitors in our clinical practice. This has led us to develop, use and teach a strategy for NMB management. Here we describe our approach, including use of audit, survey and educational projects to raise departmental awareness and improve practice.

Sugammadex was licensed for use in the UK in 2008. The Scottish Medicines Consortium (SMC) accepted the drug for restricted use in 2009 for immediate reversal of deep NMB (situations of ventilation/intubation impossibility). The introduction of this drug to our hospital led to wider use, for example in patients with clinical evidence of residual NMB, outwith SMC recommendations. In response, working alongside our pharmacy department and drugs and therapeutics committee, we developed an ‘extended use’ policy in 2011 (Figure 1). In 2013 the SMC published updated guidance, approving sugammadex use in the routine reversal setting for high-risk surgical patients [1]. This reflected NHS Tayside’s existing policy, which is underpinned by:

- Recognition of the efficacy of sugammadex white acknowledging the cost implication of uncontrolled use
- Departmental consensus achieved for high-risk cases (Figure 1)
- Consultant approval required
- Drug stored, issued and ‘signed out’ from controlled drug cupboards, accompanied by an audit form for completion, detailing reasons for use
- Rigorous audit recording monthly output from controlled drug records matched with quarry pharmacy records (Figure 2)

Figure 1 Tayside policy for the use of sugammadex.

Equipment reversal of neuromuscular blockade in CVCI
(Cannot Ventilate Cannot Intubate) situation

Surgical indications i.e. need for deep block
Surgery type e.g. ENT endoscopy, laparoscopy, laparotomy

Patient coexisting factors (list factors)
Elderly, morbid obesity, respiratory co-morbidity, difficult airway, muscle / neuromuscular disease

Drug avoidance factors (with reason)
Need to avoid neostigmine
Need to avoid glycopyrrolate
Need to avoid suxamethonium

Residual paralysis / Inadequate reversal in the recovery room
(Post-operative Residual Curarisation - PORC)

So, what are the facts? The incidence of residual NMB (30–40%) is consistently underestimated by anaesthetists [2]. The definition of residual NMB is a TOF ratio < 0.9. Upper airway recovery and patency is dependent on recovery of the most sensitive muscle groups (to NMB effects), including the pharyngeal, genioglossus and upper airway muscles. Clinical signs of motor function recovery (adequate tidal volume, sustained head lift, positive tongue depressor test) are unreliable (positive predictive values of 20% at best). Qualitative neuromuscular monitoring cannot exclude residual NMB. Absence of detectable TOF fade merely indicates a TOF ratio of ≥ 0.4 and absence of double burst stimulus fade indicates a TOF ratio of ≥ 0.6. The only guaranteed method of ensuring adequacy of recovery is by using a quantitative nerve stimulator to ensure a TOF ratio of ≥ 0.9, before wake up and extubation.

Figure 2 Quarterly use and expenditure on sugammadex.

An initial teaching block ran over a 2-week period in 2015 using the TOF-Watch accelerometer. The 34 participants had little or no experience with accelerometer use. Most (88%) felt that they were highly likely to use a quantitative nerve stimulator in their practice following the teaching. A further 2-week teaching period was carried out in early 2016, demonstrating the use of both TOF-Watch and TOFscan monitors. Again, the majority of participants highly valued this method of teaching, with feedback reflecting increasing familiarity with and use of quantitative monitoring. Of particular note was the high level of uptake among trainee anaesthetists who valued the pharmacological insight (inter-patient variability of drug effects) and precision this brought to their practice.

The introduction of sugammadex and quantitative monitoring has raised awareness of issues related to NMB practice, with introduction of training and audit programmes. The final element has been formulating an overall strategy for NMB management (Figure 4). This requires an outline plan for NMB use depending on patient and surgical factors, flexible response to intra-operative demands, and is underpinned by peripheral nerve stimulator monitoring (ideally quantitative) throughout all phases of anaesthesia.

The main themes are as follows:

- DO PARALYSE only when needed, i.e. to optimise airway management and facilitate certain surgical, e.g. intra-abdominal procedures, where DO NOT PARALYSE is the majority of surgery, it is not necessary and risks masking inadequate anaesthesia delivery (NAP5)
- Avoid excessive/repeat doses of NMB drugs [2] to minimise the risk of deep NMB at the end of surgery, potential inadequate reversal and residual paralysis (NAP5) [3]
- Quantitative monitors allow exact timing of drug administration and measured recovery to a TOF ratio > 0.9. This allows safe and timely reversal with neostigmine, where sugammadex is unavailable or its use restricted due to cost
- Quantitative monitoring ultimately allows certainty to replace ‘best guess’

A strategy for NMB allows appropriate use throughout anaesthesia, and is necessary given the wide pharmacokinetic variation among patients [6]. The ultimate aim is safe awakening and extubation, free of residual paralysis. These principles require routine clinical practice and ongoing education and reinforcement.

A recent local survey indicated that there has been a positive impact in our department. Fifty anaesthetists (60%) responded, revealing 100% use of a peripheral nerve stimulator when paralysing a patient, with 42% monitoring throughout all phases of anaesthesia. It was encouraging to see 82% of the responders use the newly acquired quantitative monitors.
We believe the future must include the routine use of quantitative monitors [7], both to improve patient care and allow judicious use of costly drugs like sugammadex. We require manufacturers to produce NMB monitors that are reliable, user friendly, free from interference, affordable and ideally integrate with existing theatre monitors. Our local plans include further tea trolley training, ongoing critical incident evaluation, audit of patient outcomes and quality, monitoring of our drug use and spend data, and further quantitative monitor acquisition and use.

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The Royal National Orthopaedic Hospital, London, Stanmore

Conference Highlights

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Abstract submission deadline: 13th September 2017
Registration opens: 28th April 2017
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British Airways clinical human factors training

Entering the final 18 months of training one cannot help but appreciate the vital role non-technical skills have in the delivery of safe and effective clinical care. They answer questions such as ‘how do I interact productively with all the different teams I work with on a day-to-day basis?’ ‘How do I placate the multitude of demands for a limited resource and ensure it is used most appropriately?’ And if something does go wrong, ‘how can I best lead a team to remedy the situation?’

I have undertaken a number of medical simulation courses during my training, including the excellent MEPA course and its obstetric equivalent. However, these often emphasise ‘disaster management’ within the theatre environment, and elaborate little on the wider skill set one would need to utilise in other environments, or possibly even situations more akin to daily practice.

I wanted a different perspective, to think outside of the NHS box, and I stumbled across a Human Factors course run by British Airways. The aviation industry has a multitude of strictly enforced safety policies that have evolved over time in response to near miss events and critical incidents. Could this be the opportunity I sought to learn lessons that could be integrated into my daily practice?

The course I attended was run at the British Airways Flight Academy, Heathrow. We were welcomed at the security desk, and once through the tight (but necessary) security process, were rewarded with a warm and modern learning facility, complete with 10 flight simulators in an adjacent hanger (a shamelessly shallow draw to this particular course…).

The faculty consists of experienced aviation trainers and a group of doctors of various backgrounds (mostly obstetrics and gynaecology and general practice). They represent prominent voices in this field. Delegate numbers are limited to 16, and we were divided into groups to facilitate break-away discussions and practical scenarios.

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The course was opened by a senior flight trainer who delved into the development of safety protocols within the aviation industry through video examples and by recounting actual events. He shared some of the techniques taught to pilots that act to maximise their situational awareness and problem solving capacity during periods of increased mental stress and distraction. There are acronyms used to buy time and to better understand an unusual situation; a flat cockpit hierarchy is an example of how a situation in which one person is responsible for all tasks can be overcome. These situations are referred to. The application to clinical practice was obvious and some delegates offered up some of their own experiences, pausing to reflect on how this new knowledge might have been of benefit.

The underlying message was not lost on us. A big part of the course was how and when to challenge authority. The debrief revealed a scenario designed to bring out certain personality traits and how, through training, one develops more robust and effective skills. This simple exercise stimulated a surprising amount of conversation, and it was clear that participants leave in deep reflection.

Lectures were broken up into two practical sessions. The first was a role play on a flight, where a clinical situation drew together two strangers who had to problem solve under time constraints. This was not a clinical exercise and no diagnosis was required; the debrief revealed a scenario designed to bring out certain personality traits and how, through training, one develops more robust and effective skills. This simple exercise stimulated a surprising amount of conversation, and it was clear that participants leave in deep reflection.

The ‘real’ reason we were all there was for a 45-minute session across the windscreen, and my drive home would take many hours. The ‘View’ is the best achievable view of the vocal cords (full, partial, none), the ‘Ease’ of intubation is given a numerical score (1, 2 or 3 from easy to difficult) and ‘Device’ simply describes the videolaryngoscope (including blade) used. So it is a descriptive scoring system. Using video recordings of intubations, the authors report that critical care doctors found accuracy, intra- and inter-rater reliability were all high for the Fremantle score, and in aggregate higher than other methods. They argue that the additional information about ease of intubation conveyed by the Fremantle score may support its routine use in recording videolaryngoscopic intubation. In the (near) future rather than be handed over a patient with a ‘Grade 3 intubation’, you may take over care of a patient classed ‘View Full; Ease 3; Device C-Mac’. It is not a ‘linear’ scale, but perhaps aids understanding.

The day culminated in a reflective exercise, with delegates asked to recall an experience from the day that they would take back to their workplace. Like my colleagues around me, I desperately tried to think beyond the flight simulator! However, to my surprise, this seemingly innocuous exercise continued to raise and clarify ideas and issues that I had not considered, and even at that late stage of the day I was learning. The course drew to a close, we returned our visitor passes, and headed back to our cars. Frost had settled across the windscreen, and my drive home would take many hours. If only I could have borrowed the A380 on the runway...
Dear Editor

Who is liable?

Recently I have questioned the sterility of saline bags (Baxter, UK) [1], which are often used by surgeons for irrigation and often used by some anaesthetists for central venous catheter placements or even in neuraxial procedures. Having personal interest in product liability issues, I addressed my query to the manufacturer and received the following response:

The production of Vialto (type of plastic container) is an automated process where the bags are formed, filled, sealed and over-pouched before sterilization. The overall product is terminally sterilized using steam. Therefore, both the primary container and its over pouch are considered as sterilized.

The purpose of the over pouch is to protect the primary container from dust and other adverse conditions until the moment of use. The primary container is sterilized at the same time as the over pouch and the interface between both. The interface will remain in that state as long as the integrity of the protective over pouch is not compromised by micro leaks that could occur during the warehousing, transport and handling of the containers until the moment of use. Therefore, we cannot guarantee that the primary container will still be sterile when you open the over pouch. Care should be taken when handling the products to minimise the risk of damage and the potential for contamination of the surface of the inner bag [2]. In my opinion, the fact that the over pouch is not designed to keep the bag sterile externally, although technically it might do so, indicates that the manufacturer would not accept liability for ‘sterile use’ of the bag. Unlike products that are specifically designed for sterile use (e.g. syringes), these saline bags do not have the method of sterilisation mentioned and the external plastic wrapping does not ‘peel off’. I came to the conclusion that I will not be using these bags for sterile procedures, but will use ‘guaranteed sterile’ bags.”

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Anna Cormack
ST5 Anaesthetics, West of Scotland School of Anaesthesiology

Dear Editor

I was walking down Wimpole St, London, on route to the AAGBI in Portland Place from Maida Vale Station and saw this van parked. How can we check whether the driver is fully trained to RCoA standards, and if he/she is can we assume he is not exceeding his daily hours?

Dr Michael Ward
Oxford

Dear Editor

The use of ultrasound is becoming increasingly common in regional anaesthesia, allowing the operator to identify the anatomy, accurately guide needle tip placement and visualise spread of local anaesthetic. This increases both the safety of the procedure and the success rate of providing satisfactory anaesthesia and analgesia. However, NICE guidelines recommend that if ultrasound is to be used it must provide images of adequate quality [1].

Figure 1: A) Ultrasound probe with Hydrofilm cover and chlorhexidine 0.5%; B) Ultrasound image with Hydrofilm cover of an interscalene groove following contact with chlorhexidine; C) Ultrasound probe with Tegaderm cover and chlorhexidine 0.5%; D) Ultrasound image with Tegaderm cover of an interscalene groove following contact with chlorhexidine.

Skin disinfection prior to regional anaesthesia is essential to reduce the risk of infection from the procedure. The 3rd National Audit Project concluded that chlorhexidine is the antiseptic of choice for regional anaesthesia [2]. At our Trust, chlorhexidine 0.5% with alcohol 70% solution is used to disinfect the skin prior to regional anaesthesia. We also use a sterile dressing [3] to cover the ultrasound probe. Accepted practice is to allow the chlorhexidine on the skin to dry prior to the ultrasound probe. However, in the interests of time and also being aware of opportunities, the operator may choose to start using the ultrasound to disinfect and also identify the key anatomy prior to the chlorhexidine being completely dry. We noted that if the Hydrofilm dressing covering the ultrasound probe comes into contact with wet chlorhexidine spray, it causes the dressing to contract and become distorted, producing a poor quality ultrasound image (Figure 1A & B). Even if the chlorhexidine spray is completely dry there is the same effect on the Hydrofilm dressing and hence the quality of image produced, although to a much lesser extent. If a sterile probe cover or a Tegaderm (3M) dressing is used with the chlorhexidine solution, there is no effect on the cover and no reduction in the quality of the image, even if the dressing is used prior to the chlorhexidine being completely dry (Figure 1C & D).

We concluded that the combination of 0.5% chlorhexidine to disinfect the skin and a Hydrofilm dressing to protect the ultrasound probe results in poor quality ultrasound images. This decreases the safety of the procedure and increases the risk of a suboptimum block. In order to produce optimal images, a Tegaderm dressing must be used.

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References

Dear Editor

I present an underappreciated but potentially serious risk associated with vascular guidewires used for vascular access, while also emphasising the importance of carefully reading manufacturers’ instructions, even for commonly used equipment.

We sought to insert a Picc line (LIFECATH-PICC, Vygon) in the right basilic vein to provide long-term access for antibiotics. Under ultrasound guidance the vein was successfully cannulated with the introducer needle, and the 50 cm guidewire was advanced approximately 15 cm until resistance was felt. An attempt to withdraw the wire back through the needle resulted in further resistance and it was immediately ceased. The needle was then removed but the wire remained stuck in position. Careful examination revealed a small lump under the skin just proximal to the insertion site.

At this point the potential for a trip to interventional radiology was weighing heavily on my mind. However, a small nick in the skin at the injection site allowed the careful removal of what at first appeared to be a knot in the wire (see Figure 1). Further inspection revealed this apparent knot was in fact due to fracturing of the threads of the cold end of the outer component of the guidewire with subsequent contiguity, probably as it was withdrawn through the needle lumen.

When referring back to the instructions for use we found the following [1]:

‘Caution – do not withdraw the guidewire back into the needle as this may result in separation of the guidewire, the needle should be withdrawn first.’

We contacted the manufacturer who advised:

‘...never withdraw the guidewire back through the needle as this can damage the guidewire on the needle bevel. The guidewire should advance without resistance. If resistance is felt, do not persist, stop and withdraw both the needle and the guidewire simultaneously.’

This caution also applies to the generally larger calibre central venous guidewires. When a guidewire is inserted too far during central line placement and incorrect guidewire retention, the temptation is to pull the guidewire back through the introducer needle. In this case the needle should be removed and the wire pulled back to avoid guidewire damage. There are several reports in the literature of similar incidents occurring, sometimes resulting in untoward fragments of wire being left in situ and discovered at a later date [2–5]. This can occasionally have severe consequences for our patients [6]. Retained foreign object post-procedure is classed as an NHS Never Event and retained guidewires, or parts of, are examples of this [6]. This further highlights the need to inspect guidewires carefully for damage after removal.

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References
1. Manufacturer’s instructions for use – Vygon LIFECATH-PICC.


For those who are happy to get their AAGBI news via Twitter, the official President’s Twitter account is @AAGBIPresident and the blog is at www.aagbipresidentsblog.wordpress.com. I hope you will follow both.
Further work is urgently required to establish if this association is genuine and perform a PMCS without delay should the need arise. While there is insufficient reminder that any clinician caring for pregnant women should be prepared to This is a robust study which describes the incidence of cardiac arrest in the UK obstetric population, describe its management and report maternal and fetal outcomes with a focus on PMCS.

Methodology

Data were collected using the UK Obstetric Surveillance System, a national reporting system designed to study rare events in pregnancy. Over a 5-year period, nominated clinicians in every consultant-led unit were asked to report cases of cardiac arrest in pregnancy where basic life support was performed on a pregnant woman and, during the final year of the study, women in the first 24 h postpartum. Units reporting such an event received a questionnaire collecting data relating to the event and its management.

Results

Sixty-six cases of cardiac arrest were reported from an estimated 2,347,970 maternities nationally giving an incidence of 2.8 per 100,000 pregnancies. During the final year of the study 25 cases were identified where cardiac arrest occurred in the 24 h following delivery, suggesting an incidence of cardiac arrest in pregnancy and the immediate postpartum period of 6.3 per 100,000 maternities. Of the 66 women, 28 (42%) died. Surprisingly, the only patient characteristic associated with survival was a maternal BMI 30 kg/m².

Time to performance of PMCS was significantly shorter in women who survived with a mean time from collapse to delivery of 7 min compared with 16 min in those who died. The suspected cause of collapse was also reported. Shorty, ‘anesthetic causes’ appear to form the largest group, accounting for 51 of the 66 reports. These causes were grouped as follows: ‘total spinal’ (n = 10), problems with intubation (n = 3) and cardiovascular collapse after spinal appendage (n = 3). All of these women survived.

Discussion

This study demonstrated that the incidence of cardiac arrest in the UK is in line with previous estimates but when cardiac arrests in the immediate postpartum period are also considered, the incidence is much higher. The study shows a very clear maternal survival benefit from prompt PMCS.

The leading cause of cardiac arrest was reported to be direct complications of anesthesia though the actual part that each played in the proportion of cases related to total spinal block, is significantly higher than would be expected given existing data [2,3]. Due to the study design, which recorded incidence, patient characteristics and management, comparatively few data were collected relating to causation so the circumstances surrounding these events are not clear.

Conclusion

This is a robust study which describes the incidence of cardiac arrest in pregnancy and highlights the crucial role of early PMCS. It is a pertinent reminder that any clinician caring for pregnant women should be prepared to perform a PMCS without delay at the bedside.

There is insufficient information in this paper to interrelate the apparent association between obstetric anesthesia and cardiac arrest, the numbers give cause for concern. Further work is urgently required to establish if this association is genuine and if to investigate both its causes and what can be done to overcome them.

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References


Introduction

Increased tongue thickness can affect the ability to perform laryngoscopy and therefore can lead to a difficult airway and intubation [1,2]. Although imaging modalities such as CT and MRI can be used to evaluate the anatomy of the airway, it is not practical, safe or cost-effective to do so for all patients. The authors wanted to focus on whether ultrasonography could be used to measure tongue thickness and would be an effective modality to utilise on patients presenting with a difficult airway.

Methodology

This was a prospective observational study conducted in 2016. Patients aged 18-90 of ASA I, II or III requiring intubation with no history of upper airway anatomy in the UK obstetric population, describe its management and report maternal and fetal outcomes with a focus on PMCS.

Discussion

The incidence of difficult airway increased greatly when thicker tongues and shorter pregnancy were noted. Patients with a difficult intubation had a mean tongue thickness of 6.6 cm, compared to patients who were not deemed to be a difficult airway, with a mean tongue thickness of 5.6 cm. Patients with a difficult intubation had a mean tongue thickness of 6.4 cm, whereas patients not deemed to be a difficult intubation had mean tongue thickness of 5.8 cm.

Conclusion

This was a very interesting study that highlights another modality that can be used as part of the airway assessment. However, thickness of tongue is not reliable and easily to be easy to quantify. A large limitation is application into our own individual clinical practice. This study was from one centre in China and only included a single group and the mean BMI was approximately 23.5.

The incidence of difficult airway increased greatly when thicker tongues and shorter pregnancy were noted. Patients with a difficult intubation had a mean tongue thickness of 6.6 cm, compared to patients who were not deemed to be a difficult airway, with a mean tongue thickness of 5.6 cm. Patients with a difficult intubation had a mean tongue thickness of 6.4 cm, whereas patients not deemed to be a difficult intubation had mean tongue thickness of 5.8 cm.

References


Can tongue thickness measured by ultrasonography predict difficult tracheal intubation?

Yao W, Wang B.
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