

## **Current Training in Anaesthesia-can it be improved on and how so?**

*“See one, do one, teach one?”*

Remember the first time you successfully inserted your first epidural, the sense of triumph? The consultant that was teaching you would then take you through inserting the catheter through the Tuohy needle. Before long the textbook description of loss of resistance leapt off the pages and became a feeling at your fingertips that would not be easily forgotten.

As progression through training in obstetric anaesthesia occurs, the aims remain similar with the focus as you become more advanced turning to increasing autonomy, management and the ability to perform regional anaesthesia in “difficult backs”. The current curriculum was set out by the Royal College of Anaesthetists in 2010 and since then many things have changed including Intensive Care being a specialty in its own right, perioperative medicine becoming a new area of interest and Enhanced Recovery Programmes. In nine years, practices have changed, various guidelines have changed but the curriculum is still the same.

### My Training

My basic training was based at one of the busiest maternity hospitals in north west England and my log book reflected this, but as I expressed more of an interest in obstetric anaesthesia my experience and log book numbers dwindled as the number of deliveries could not match my first placement. During my basic placement, I was introduced to near patient coagulation testing (ROTEM) and became proficient in its use and interpretation of the results, intraoperative cell salvage that was operational 24 hours a day, complicated patients with significant co-morbidities. Soon my 3 months were over but my interest was not. My next two placements took place in district general hospitals where the spectrum of patients was not

as diverse and neither were the opportunities. Still both challenged me in individual ways. My intermediate placement I spent “on-call” whenever I was in the hospital. This allowed me to develop my skills and independence. After expressing an interest in obstetric anaesthesia, again I did my next placement in a district general hospital. I cannot fault the intermediate and higher placements but felt my training could not have exposed me to the same calibre of patients that occurred in my basic training. Should we therefore be identifying trainees earlier in their careers with an interest in obstetrics? Then ensuring that they have at least their higher block in busy teaching hospital. This would allow interaction with patients who are more problematic and exposure to their management plans. It would have been beneficial for me to participate in cases with abnormal placentation rather than the one placenta percreta that I was involved in when I was on call for general duties. This would then help the trainee form the decision to whether they wanted to apply for advanced obstetrics, which in our deanery is a competitive application. With my interest in obstetrics my consultant colleagues offered me management meetings, pre-op anaesthetic and enhanced recovery school. Should this be compulsory for those who find obstetric anaesthesia appealing? If the curriculum in advanced obstetrics was to have a more holistic approach at the heart of the unit of training then these trainees would be more suited to becoming the consultant that this specialist area requires.

### Excellence by Design

In 2017, the GMC published Excellence by design: standards for postgraduate curricula and therefore the current Annexe D that trainees follow for their CCT will change<sup>1</sup>. Gone perhaps, will be the work-based assessments we are so used to, does having multiple DOPS for spinal anaesthetics make you competent for 2am fully dilatational C-section on a pregnant lady with a BMI of 50? Hopefully the mind-boggling array of assessments will be exchanged

with fewer “speciality-based outcomes” which when completed will no doubt make trainees independent clinicians in the discipline that is obstetric anaesthesia. The work which you put in proves your competency and not just by attending the theatre lists but involvement in the multi-disciplinary team with input into obstetric HDU, morbidity and mortality meetings and attending simulation sessions to practice emergency situations. The GMC have recommended 15-20 outcomes for a CCT in anaesthesia, it will be interesting to assess how this will shape obstetric training. This could be the opportunity to split the training for those interested in obstetric anaesthesia to ensure that their experience will shape their future as obstetric anaesthetic consultants.

### Shape of Training

In 2015, the Royal College of Anaesthetists undertook an exercise to review training and whether any training could be linked with other specialties<sup>2</sup>. This is where I feel that if there is an interest in obstetric anaesthesia then perhaps there should be some sharing of training with the obstetric teams as well as perhaps neonatal. I feel that courses such as PROMPT promote multi-disciplinary interaction and expansion of these courses into education sessions would benefit all teams in not only working together but learning from each other. Core competencies in neonatal resuscitation, pre-eclampsia and major haemorrhage could be taught together.

### Patient Groups

With medical advancements, patients who before would be advised against becoming pregnant, are having children. This cohort of patients provides unique challenges to the anaesthetist including learning about unusual congenital defects, rare syndromes and what effects this may have when combined with an anaesthetic. The care for some patients with

adult congenital cardiac problems is usually provided in specialist centres with experts available. This cannot be the case for every organ system so local obstetric units will require to expand to provide the care these women require. Most of these patients will be identified in their antenatal care and will make their way to the various high-risk clinics, one of which should be anaesthetic clinic. The main question to answer is whether central neuraxial blockade is advisable in these patients. Furthermore, to increase experience and teaching, unusual cases could be shared in a national register with the outcome of anaesthetic input and patients care combined with the rare diagnosis. This register could provide an invaluable teaching and training tool for uncommon cases but would require monitoring and selection of appropriate cases.

The problem of the ageing population faces not only the general anaesthetist but also the obstetric anaesthetist. Older women are more likely to have comorbidities such as hypertension. They can be at a higher risk of twins, triplets and children with congenital health problems. During birth they can have increased risk of complications such as prolonged labour, assisted delivery or Caesarean section or stillbirth<sup>3</sup>. The risk of pre-eclampsia is higher. As the population changes, we must strive to ensure our training covers the issues surrounding the older parturient. Following on for expectant mothers now surviving health problems that before would not allow them to fall pregnant, they are now more likely to be older as well. An aging population again demonstrates that multi-disciplinary ante-natal clinics with anaesthetic involvement would best support these patients. In this way we are delivering care according to the Shape of Training Report by the GMC.

Obesity is becoming “normal”, with less than half of the obstetric population being in the normal BMI range (47.3%) with 21.3% of the population being obese<sup>4</sup>. This patient group is more likely to have gestational diabetes, be Type II diabetic and have pre-eclampsia. They may prove to have more difficult anatomy to palpate and thus spinal and epidural

anaesthesia may not be successful in a group where regional would be highly advised. The higher curriculum dictates that there should be familiarity around the “difficult back”. What happens when it is so difficult to palpate the iliac crests and find Tuffier’s line, or thoracic vertebra cannot be felt? When do you go for the longer needle, when your tenting the skin with the 80mm needle? Should a combined spinal-epidural route be advocated and therefore using the 18G Tuohy as a large introducer. The answer to this is simple, we already have the skills to use ultrasound for placement of lines and nerve blocks. Teaching in ultrasound guided central neuraxial blockade should become common place. The important information of midline, an interspace and depth to ligamentous flavum will no longer have to be guessed but can be measured accurately. A paper in the International Journal of Obstetric Anaesthesia found that there was no increased success rate in those patients with easy to identify bony landmarks<sup>5</sup>. However, this is not to say that it would not be advantageous to start practising the skill of spinal sonography in the elective section list with patients in which the anatomy is unlikely to be difficult. Studies shown that anaesthetist’s ability to recognise the interspace they are palpating may not be accurate with only 14-64% being correct<sup>6</sup>. But some of the incorrect interspaces were almost always higher than expected and sometimes by even 2. A potentially new skill will take time to become proficient. Anaesthetists will have to ultrasound each back they come across so as to improve their knowledge and skills. Also, who would take on the training, currently ultrasound guided sonoanatomy is taught on regional anaesthesia courses and there is a specific one at the Liverpool Women’s Hospital (in case anyone is interested).

Routinely I believe we should also teach the paramedian approach when teaching trainees about spinal anaesthesia. This approach can lead to a bigger space through which to pass the needle. The first time I used this technique, it was suggested to me by an Operating

Department Practitioner, in the middle of the night. Since that night I always ensure to practice this approach so it is almost routine.

I believe that the technique of combined spinal epidural, paramedian approach and ultrasound of the back should be taught to not only trainee in obstetric anaesthesia but all anaesthetic trainees.

### Simulation

The variety of courses that are aimed at team building and learning from PROMPT, to mMOET and to regional simulation. These can be great to learn on and develop relationships with a team that you will work with in some of the most stressful situations in your career. During a recent placement I had the chance to be involved in three simulated cardiac arrest scenarios on different days. Each set up lasted five minutes from when the entire team arrived followed by a quick debrief and targeted feedback by the cardiac arrest team on a post it. The whole situation lasted maybe ten minutes but valuable lessons were learned. The scope to expand in house simulation in either big half day events where study leave is required to quick ten-minute sessions which can take place while normal work continues. These small in house moulages would have participation from the whole team including midwives, anaesthetists, obstetricians and theatre staff. The days on which they occurred would rotate so as to expose as many people to the scenario.

It has been long recognised that simulation and being filmed is the most realistic way of ensuring safe practice of difficult drills that would otherwise affect patient safety. These should be extended in obstetric anaesthesia and be made compulsory. The practice of the difficult airway, perimortem C-section, high spinal, maternal collapse could all form part of these sessions. While teaching on a recent ED-Scottie course, I had the opportunity to watch a simulation session that led to a perimortem section. It was uncomfortable to watch but the

audience learnt that the most difficult part of this scenario was to vocalise the decision to perform the perimortem section. If there was regional simulation set up with support received from the bigger centres to run courses for trainees, this would perhaps improve confidence in handling these situations. Having moved deanery between my core training and the rest of my training, the value of simulation is different. During my core training, simulation was the norm and some of the courses were mandatory. These simulation courses could be developed around basic, intermediate and higher training with the learning outcomes different for each stage and with added sophistication for each level also. This could also help trainees achieve the obstetric outcome that be part of the new 2020 curriculum.

#### The General Anaesthetic C-section

Cricoid pressure, in recent times, has become more controversial and at the recent Difficult Airway Society meeting a change was introduced. Instead of 30N on the cricothyroid membrane, apparently a good view can be got with pressure to the left of the midline of the neck at the level of the crico-thrypid membrane. A further advantage of this technique is allowing the anaesthetist more space to insert the laryngoscope blade as the handle does not become caught the on assistant, breast tissue and the small mouth. Interestingly, as one of the few countries that still advocate the use of cricoid pressure, should this technique still be used. In my practice, the person performing the cricoid pressure may not be the most experienced and this manoeuvre can be more of a hindrance than assistance. A few times when I have asked for it to be removed, I have been met with disbelief and a slight delay in the follow through for request. How then do we change a national practice of using cricoid pressure for a rapid sequence induction? By introducing the idea to trainees, this practice may change. Multiple European guidelines do not advocate the use of cricoid pressure and indeed use of cricoid pressure came into practice following a small case series and cadaveric

studies by Sellick<sup>7</sup>. Before cricoid pressure was applied to patients undergoing caesarean section under general anaesthetic there was 52 deaths due to aspiration reported in a 5-year period before 1970. In an 11-year period after cricoid pressure was introduced there were only 2 deaths attributed to aspiration of gastric contents<sup>8</sup>. Is this enough evidence to convince the use of cricoid pressure or will a ramped position with the helpful HELP pillow and potentially left lateral pressure on the airway be better? As training progresses, this may change and perhaps we should ensure that all levels of training are aware of the options for cricoid pressure and have the confidence to vocalise their wishes. This would tie in with having mandatory simulation sessions for anaesthetic emergencies or difficulties.

Traditional teaching for rapid sequence was thiopentone and suxamethonium. The availability of rocuronium and sugammadex has changed practice throughout the UK. Teaching around choice of drugs for a rapid sequence should encourage trainees to use drugs that they are comfortable with and for me that is propofol and rocuronium. Further guidelines have recommended that a video-laryngoscope should be immediately available and that no larger than a size 7 cuffed endotracheal tube should be inserted. Ensuring that trainees are familiar with the video laryngoscope that is in use in that department is paramount.

### Distance Learning

Online learning modules and distance learning is far from a new idea. Learnpro is known to most of healthcare professionals with the mandatory modules for induction and child protection training well known. For obstetrics there could again be different levels for the 3 stages of training. Basic training would cover modules on common obstetric conditions such as pre-eclampsia, abnormal placentas, major haemorrhage and anaesthetic plans such as how to top up an epidural for caesarean section. Ideally these could be completed during the block and a certificate at the end could put towards CPD points. I am aware that the time,

effort and funds put into this kind of system could be potentially quite large but internet and distance learning courses are becoming more conventional and if put in place could form part of national programme for trainees and could help to achieve the “outcome” for obstetric anaesthesia in the new 2020 curriculum.

The question that was posed at the beginning, can training in obstetric anaesthesia be improved? With a changing patient population, increasing complexity and a new curriculum due in 2020 this would be the ideal opportunity to take some new ideas forward. All the above concepts would take significant effort to put into place but would change the face of training. All that I have experienced will help form me as a consultant, with new direction, training in obstetric anaesthesia could help transform a junior doctor into the independent practitioner that the GMC is looking for.

Now I leave you with a quote that has haunted me for throughout my training that has been on every Mersey exam course I have attended,

*“If you feed the children with a spoon, they will never learn to use chopsticks”*, sometimes you have to let the trainee explain how training should be shaped to improve the experience and the knowledge for the junior doctors that come after.

1. February 2019, <https://www.rcoa.ac.uk/careers-and-training/state-of-play-newsletter>
2. February 2019, <https://www.rcoa.ac.uk/shape-of-training>
3. February 2019, <https://www.nhs.uk/news/pregnancy-and-child/pregnancy-warning-for-older-women/>
4. February 2019, <https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg72/>
5. Ansari, T., Yousef, A., El Garnassy, A., Fayez, M.,. Ultrasound-guided spinal anaesthesia in obstetrics: is there an advantage over landmark technique in patients with easy palpable spine? *IJOA* Aug2014;23, 3, 213-216
6. Ghosh SM, Madjdpour C, Chin KJ, Ultrasound-guided lumbar central neuraxial block, *British Journal of Anaesthesia Education*, Vol 16, Issue 7, 2016, Pg 213-220
7. Ramez Salem M, Khorasani A, Zeidan A et al, Cricoid Pressure Controversies: Narrative Review, *Anesthesiology* 4 2017, Vol 126, 738-752
8. Vanner, RG Cricoid pressure. *Int J Obstet Anesth* 2009; 18:103–5.