



THE NEWSLETTER
OF THE
ASSOCIATION
OF ANAESTHETISTS
OF GREAT BRITAIN
AND IRELAND

Anaesthesia News

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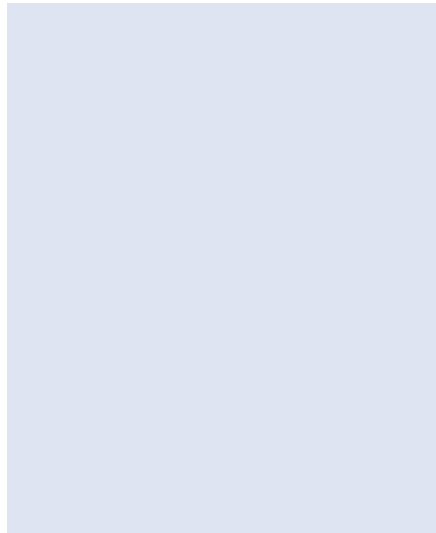
Returning to work
after a major illness

Which logbook?

John Snow's ether
vaporiser

NHS evidence

ULTRASOUND TRAINING COURSES 2010



2010 course dates:

Advanced Ultrasound Guided Regional Anaesthesia

21 – 22 June – Brighton (A) (FULL)

9 – 10 September – Liverpool

3 – 4 December – Nottingham (A)

Introductory Ultrasound Guided Regional Anaesthesia

17 – 18 May – Hitchin (FULL)

5 – 6 July – Hitchin

22 – 23 November – Hitchin

Ultrasound Guided Venous Access

15 April – Hitchin

10 June – Hitchin

22 July – Hitchin

16 September – Hitchin

11 November – Hitchin

Ultrasound Guided Chronic Pain Management

12 May – Hitchin

22 September – Hitchin

15 November – Hitchin

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www.sonositeeducation.co.uk

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Ultrasound Guided Regional Anaesthesia – Beyond Introductory

These courses are organized by **Regional Anaesthesia UK – RA-UK** (formerly ESRA UK & Ireland) the official UK national regional anaesthesia society affiliated to ESRA, in conjunction with SonoSite Ltd. This two-day course is aimed at anaesthetists wishing to improve their skills in UGRA and comprises of didactic lectures covering all commonly used regional techniques, clinical and cadaveric anatomy (A) demonstrations and practical hands-on workshops. Further information on the faculty and content of this course can be found on the RAUK website www.RA-UK.org, these courses are also recognized for the ESRA diploma.



Please Note: These do not count as a cadaver course, only as another course to fulfill the recommendations. An RA-UK specific cadaver course will be held in December 2010 in Oxford.

Introductory Ultrasound Guided Regional Anaesthesia

The two-day introductory course is designed to teach those who have little or no experience in the use of ultrasound in their normal daily practice. The course comprises of didactic lectures on the physics of ultrasound, ultrasound anatomy and regional anaesthesia techniques. The lectures and hands-on sessions will concentrate on the brachial plexus, upper and lower limb blocks.

Ultrasound Guided Venous Access

This one-day course is aimed at physicians and nurses involved with line placement and comprises didactic lectures, ultrasound of the neck, hands-on training with live models, in-vitro training in ultrasound guided puncture and demonstration of ultrasound guided central venous access. The emphasis is on jugular venous access, but femoral, subclavian and arm vein access will also be discussed.

Ultrasound Guided Chronic Pain Management

The course is aimed at chronic pain specialists, or other interested parties practising in chronic pain medicine who have little or no experience of musculoskeletal ultrasound and who wish to obtain an introduction to ultrasound in chronic pain medicine skills.

Fees: £350 / £450 (A) (two-day courses) includes VAT, lunch, refreshments and course materials.

£250 (one-day courses) includes VAT, lunch, refreshments and course materials.

(A) – Anatomy based courses / with cadaveric prosections.

If you have any questions or should need further information please contact:

Jes Tiller, SonoSite Ltd, Alexander House, 40A Wilbury Way, Hitchin Herts, SG4 0AP

Tel: +44 (0) 1462 444800 Fax: +44 (0) 1462 444801 E-mail: education@sonosite.com



Appraisal season is in full swing in my Trust (and presumably most others) as I write; I have so far done two of the four I am scheduled to do and have made no progress towards getting mine done. The deadline for completing this task is two weeks hence; so with lots of effort it should be possible to get them done. Appraising my colleagues is generally a pretty humbling experience; I am reminded how hard we work, how seriously we take our work and on occasion how little we are valued, or more accurately perhaps, how little we perceive ourselves to be valued.

Editorial

The gentle art of feedback

Appraisal has given us a great opportunity to help correct this perception – I do not subscribe to the belief that appraisal has been a waste of time and money to date. Appraisal could be significantly improved however, if assessment data were more clearly available, as this would enable the appraiser to challenge appraisee's views of themselves which are not in accord with those of others. It is clearly stated as an objective for revalidation that appraisal will be the basic mechanism for revalidating, and that this should be informed by robust data, including multisource feedback (MSF) [1].

The recent history of various forms of MSF in my Trust and Deanery are not, however, encouraging, and I think that we face

considerable difficulties in implementing this aspect of revalidation. For example; it has recently been agreed in my department that trainees would have the opportunity to provide individual feedback about their trainers. Not before time, many of you may be thinking; this is hardly a novel idea educationally and is embedded into the educational system in many Deaneries. However, it was accepted somewhat grudgingly by my department, and with the option for individual consultants to opt out. Within the Deanery, evidence that one of our trainees was in difficulty based on consultant feedback (a form of MSF) was apparently dismissed by the Dean as 'too subjective' at a recent ARCP review. The wholesale introduction of MSF for

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consultants has been considered at a very senior level within my Trust on a number of occasions; we now have an Assistant Medical director who is responsible for the introduction of revalidation but he does not foresee MSF for non-training medical staff being introduced Trust-wide any time soon.

Another aspect of the provision of robust data such as MSF required for revalidation is the developments in IT which are needed to help collect and organise the data. In our Trust, the entire IT capability seems to be more than taken up with the development and implementation of the e-record. There is absolutely no support available for developing or maintaining feedback systems. In obstetric anaesthesia, we had used the Wansbeck epidural audit system for years; this provided (inter alia) individualised patient feedback about epidural analgesia which would have been eminently suitable for use in our revalidation. The Trust has always been unsupportive of our use of this system, and it recently stopped working altogether due to some sort of software conflict. The Trust IT department refuses to do anything about this..... and so on.

The GMC is consulting us about revalidation; if you haven't already done so I suggest you visit the GMC website and consider the 20 questions posed in the consultation, which closes on 4th June. The accompanying 52 page document [1] and the Royal College of Anaesthetists' specialty framework (ASSF) [2] provide lots of information, some of which is apparently conflicting. For example, point 42 in 'Revalidation; The Way Ahead' reads as follows: 'When the government published proposals for revalidation in 2007, these were divided into relicensing and recertification. We are now proposing a single system'. Whew. The ASSF then states at point 1.1 'Revalidation will have two elements; relicensing and re-certification.' To be fair, the latter document does then go on to say that the two elements will not require two separate processes. The ASSF describes the framework for revalidation for anaesthetists in terms of four 'domains' (derived from the seven which are now familiar from the GMC's 'Good Medical Practice' documents). Each domain is sub-divided into three 'attributes'; hence there are twelve attributes which will form the 'headings' under which appraisal and revalidation will take place. MSF is listed

under the suggestions for 'possible sources of supporting information' for all twelve attributes, so I think we can take it as read that we will be doing this. The only real concern I have about all this (apart from the concerns about the process outlined above) is that the art of giving (and receiving) feedback has not been emphasised to date; there is considerable potential for harm if the giving of feedback is delegated to people without well-developed skills.

There is a distinct lack of clarity about when we will need to start doing all this; 'The Way Ahead' states that we should plan to 'move towards a state of readiness' within 12 to 18 months. This seems to me to be sufficiently vague to guarantee that virtually nothing happens for 18 months, but it would be wise to read these documents, find out what is planned in your hospital, and to think about what you can do to 'move towards a state of readiness'. Honing our feedback skills would be a good place to start.



In this month's *Anaesthesia News* we have some interesting contributions. This year's Wylie prize-winning essay written by a medical student summarises nicely the evidence to date that regional anaesthesia may influence recurrence rates when used perioperatively during cancer surgery. Medical students are an impressive bunch these days – I can't really recall too much of my medical student days, but I certainly don't recall writing or indeed learning anything as relevant to the real world as Amanda Rhodes' contribution.

On the GAT page there is a review of various logbook options; this is not just of interest to trainees as keeping a logbook is

looking increasingly useful for consultants as well (though it is not actually listed as such in the lists of possible sources of supporting information in the ASSF). I have not yet succumbed to the wiles of an i-phone, but this article leads me to the conclusion that it is now just a matter of time. Scoop fantasises about the i-phone (again) this month, I fear he is becoming obsessed....

Kate Bullen expands on last month's description of the development of the SAS committee within the AAGBI. I would welcome letters or other submissions from SAS or Trust doctors – make your views known!

Mike Ward will be familiar to many as the author of the 'standard' text on anaesthetic equipment. I look back regretfully to the days when anaesthetic machines and ventilators could be easily understood by any anaesthetist, and harbour a suspicion that the increasing complexity of equipment is not only a problem for the third world. Mike has retired, and we print his reminiscences about ether on the history page this month, together with a description of John Snow's ether vaporiser by David Zuck and Henry Connor.

Presumably, the general election will be upon us by the time this is printed. Whatever the outcome, things don't look great for the health service financially speaking, but it will be good to at least know who we are dealing with for the next few years.

Val Bythell

Shortly before this edition went to press I was saddened to hear of the death of Ed Charlton, who was the second editor of *Anaesthesia News*. He will be greatly missed; John Ballance (the third editor) has written a short notice this month, and we will publish a longer tribute in due course.

References

1. Revalidation: The way ahead. Consultation document. Available at <http://www.gmc.uk.org/revalidation>. Accessed March 19th 2010.
2. Royal College of Anaesthetists Specialty Standards for Revalidation. Anaesthesia Specialty Standards Framework. 2010. Available at <http://www.rcoa.ac.uk/index.asp?PageID=1390> Accessed 19th March 2010.

Two decades of Specialty Doctors within the AAGBI

When I qualified in medicine in 1973 I intended to become a surgeon and work in one of the Third World countries. I did not intend to get married three years later, have three children in the next three years, or move house and country of domicile nine times in seven years. Neither was becoming a Non Consultant Career Grade (then SAS 2002 and now Specialty Doctor 2008) Associate Specialist in Anaesthesia my ultimate career aspiration. Indeed, I had never heard of the grade and probably would not have wanted to enter it if I'd known the faintest thing about it or how it was perceived by the rest of the profession (and some within it) in 1990. But life is a series of roads less travelled and an Associate Specialist is what I became and my career as one has been endlessly rewarding; such that I do not regret for one moment the path it has taken.

Perhaps I would feel differently and be less positive if I had tried to become the surgeon I intended to be instead of an anaesthetist (anaesthesia being the nearest specialty to surgery I could think of) and if I did not belong to a forward thinking specialty with a strong sense of community and having a supportive and egalitarian organisation to represent it.

After obtaining Fellowship in 1990, I moved to my current post at Frenchay Hospital Bristol and encountered some iconic figures in Anaesthesia such as John Zorab and Peter Baskett (a Past President and a subsequent President of AAGBI) and Peter Simpson (subsequently President of the Royal College of Anaesthesia and Chair of PMETB). I identify them all as being profoundly influential not only in my

personal career development, but also in the wider improvements to status, visibility and representation of all SAS Anaesthetists.

Just as I arrived in Bristol as an Associate Specialist, Peter Baskett became AAGBI President and had set up a Working Party to produce one of the legendary AAGBI "glossies" on Non Consultant Career Grade Anaesthetists. He did not have to look too far across the department to find a suitable NCCG participant in myself. That working party, chaired by Peter Morris, published its recommendations as an A3 document in 1993. This was revised by another group chaired by Bob Buckland in 1998, revised again by a group chaired by Les Gemmell in 2008, and now appears as the 2008 SAS Handbook. Each of these Chairmen was sincerely committed to enhancing the image of the SAS and improving the services offered to them by AAGBI. Perhaps, as a reflection of how far we as a group have progressed over the years, it is worth noting that the Handbook is now A4: twice the size and, hopefully generating twice the impact of those early productions.

One thing led on to another and, by the end of the 90s, the Royal College and John Curran in particular, had also started exploring how it could better identify and engage with SAS anaesthetists and I had become involved in that arena as a known member of the grade. An NCCG development day took place and an NCCG committee, initially ad hoc but subsequently a recognised sub-committee of RCoA, was established. Having started off the blocks slightly later than AAGBI on NCCG matters, it looked as though the



Kate Bullen

College had stolen a march on us by setting this up and that more needed to be done by AAGBI if it was to establish a continuing NCCG presence within its body.

In 2000 I stood for one of the seats on AAGBI Council and, to my surprise and delight was elected and remained in place until 2005. As well as representing the views of our group effectively within our professional organisation, securing a continuing presence that was not based on random electoral success, was a priority aim.

The AAGBI NCCG (SAS) committee was established without dissent in 2002, chaired by me in the first instance and subsequently by Ramana Alladi. The RCoA established 2 SAS seats on its Council in the same year. We go from strength to strength both in membership numbers and in having a voice in so many other arenas. Virtually all Royal Colleges now have SAS groups, some have Council seats and the BMA has an individual Branch of Practice

committee (SASC). SAS have a permanent presence in PMETB (both members are anaesthetists), MEE and there are now SAS Clinical Tutors and Associate Deans across the nations. NHSCE regularly consults with the SAS and our voice is heard wherever professional matters are discussed from the Trusts and Deaneries to the GMC and Department of Health.

None of this advance would have been achieved if AAGBI had not been the first organisation to take steps towards recognition of our group and ensuring that we were appropriately represented and supported. Few of us, who have had the privilege to speak on your behalf and work towards SAS advancement, would have succeeded to the same degree without the vision, support and encouragement of those individuals I have named or the many others I have not named because the list would be so long.

Well done AAGBI and well done all those SAS who saw a gap in the wall and strode

through it. I am confident that we will continue to prosper in an uncertain and challenging future as long as we believe in ourselves and in our value as SAS doctors.

Dr Kate Bullen

Glossary of terms

AAGBI: Association of Anaesthetists of Great Britain and Ireland

RCOA: Royal College of Anaesthetists

NCCG: Non Consultant Career Grade Doctors

SAS: Staff and Associate Specialists

SASC: BMA Staff and Associate Specialist Committee

BMA: British Medical Association

PMETB: Postgraduate Medical Education and Training Board

MEE: Medical Education:England

NHSCE: NHS Confederation of Employers

GMC: General Medical Council



Meeting Report

AAGBI Current Topics, BMA House 4th-5th March 2010

What a meeting!!!!

An extensive two day programme attracted over 200 delegates (some from overseas) was organised by the Chairman of the SAS committee Dr Ramana Alladi to mark the 10th Anniversary of the SAS committee.

The first day included four sessions on the heart and anaesthesia, an update on emergency anaesthesia, 'SAS matters' and concluded with future trends in day case surgery, fast track colorectal surgery and the WHO checklist.

The second day started with a very interesting walk through the history of the SAS grade and development of SAS grade by Kate Bullen.

A wide range of topics was covered over two days; delegates also had the choice of

attending workshops on the difficult airway, ultrasound and TIVA.

The Meeting dinner on the Thursday evening was a real treat for those who attended - a small group of forty people. With an Indian theme, the fantastic food along with live entertainment to match made the evening memorable. A group of young dancers performed an Indian classical dance "Bharatnatyam" which was thoroughly appreciated by the crowd while enjoying the meal.

Although it is difficult to choose a highlight from such a varied programme, we think the best was saved till the last. Dr William Harrop-Griffiths and Dr John Hardman lead us in lively discussions around some 'Tricky Situations'. In turn, they each presented various 'tricky' situations, which they had

faced in their own clinical practice. They asked a panel, and then the audience, 'What would you do?' It was a very successful session, to the point that when we were given the option of finishing early on Friday evening, or continuing until the planned finish time of 5pm, the overwhelming majority voted to carry on! It is a session we would highly recommend if it were ever to be repeated.

In conclusion, it was a very interesting and informative meeting, with good speakers and lively interactions. The meeting proved to be both productive and enjoyable and certainly worth the trip.

**Maria Garside, Specialty Doctor,
Bradford Royal Infirmary.
Smita Oswal, Associate Specialist,
Bradford Royal Infirmary**

The Mersey Menu

*Primary MCQ Week 18 – 23 May
Aintree Hospitals, Liverpool.*

*Final FRCA Viva Weekend 11-13 June
Aintree Hospitals, Liverpool.*

*Private SBA Faculty Weekend 24 – 25 July
Aintree Hospitals, Liverpool*

*Final MCQ Week 8 – 13 August
Aintree Hospitals, Liverpool*

*Private SAQ and E&SAQ Weekend 13 – 15 August
Aintree Hospitals, Liverpool*

*Final Revision (Booker) Course Week 15 – 20 August
Liverpool Medical Institution*

*Private SAQ and E&SAQ Writers Club Weekend 20 – 22 August
Aintree Hospitals, Liverpool*

*Primary MCQ Week 22 – 27 August
Aintree Hospitals, Liverpool*

*Final E&SAQ Weekend 27 – 29 August
Aintree Hospitals, Liverpool*

*Primary OSCE Weekend 3 – 5 September
Aintree Hospitals, Liverpool*

*Primary FRCA Viva Weekend 17 – 19 September
Aintree Hospitals, Liverpool*

*Primary FRCA OSCE/Orals Week 24 September – 1 October
Venue – To Be Arranged*

For Information on all MSA Courses - msoa.org.uk

2010 ASRA Guidelines

on Regional Anaesthesia in the Patient Receiving Antithrombotic or Thrombolytic Therapy

The American Society of Regional Anesthesia and Pain Medicine (ASRA) recently convened its Third Consensus Conference on Regional Anesthesia and Anticoagulation and published updated guidelines in the setting of antithrombotic and thrombolytic therapy. These guidelines apply to neuraxial, plexus and peripheral regional techniques in both the surgical patient and the parturient and can be summarized as follows:

Anaesthetic management of the patient receiving thrombolytic therapy

In patients who have *received* fibrinolytic and thrombolytic drugs, neuraxial techniques should be avoided except in highly unusual circumstances.

In patients who have received neuraxial blocks at or near the time of fibrinolytic or thrombolytic therapy, neurologic checks should be done at 2 hourly intervals. Fibrinogen levels should be measured before catheter removal.

Anaesthetic management of the patient receiving unfractionated heparin(UFH)

Subcutaneous UFH

There is no contraindication to the use of neuraxial techniques in patients receiving prophylaxis with 5000 U of subcutaneous UFH twice daily.

The safety of neuraxial blockade in patients receiving doses greater than 10,000 U of

UFH daily or more than twice daily dosing of UFH has not been established.

In view of the risk of heparin-induced thrombocytopenia, it is recommended that a platelet count is assessed before neuraxial block or catheter removal in patients receiving UFH for 4 days or more.

Intravenous UFH

If a patient needs intraoperative anticoagulation with heparin, administration should be delayed for at least 1 hour after needle placement.

Indwelling catheters should be removed 2 to 4 hours after the last heparin dose; re-heparinization should be delayed for at least 1 hour after catheter removal. Use of minimal concentrations of local anaesthetics in this setting will facilitate the early detection of a spinal haematoma.

Anaesthetic management of the patient receiving low molecular weight heparin (LMWH)

There is no need for routine monitoring of the anti-Xa level. Concomitant administration of antiplatelet drugs, heparin or dextran should be avoided regardless of LMWH dosing regimen.

Preoperative LMWH – Neuraxial blockade should be performed no sooner than 10-12 hours after a prophylactic dose or 24 hours after a higher therapeutic dose of LMWH.

Postoperative LMWH – For twice daily dosing the first dose of LMWH should be administered no earlier than 24 hours

postoperatively, regardless of anaesthetic technique. Catheters should be removed before initiation of LMWH and dose administration should be delayed for 2 hours after catheter removal.

For single daily dosing the first postoperative LMWH dose should be administered 6-8 hours postoperatively. Catheters should be removed a minimum of 10-12 hrs after the last dose of LMWH and subsequent LMWH dosing should not occur before a minimum of 2 hours.

Anaesthetic management of the patient on oral anticoagulants

Oral anticoagulant therapy should be stopped 4-5 days before a procedure and the INR should be normalized before initiation of a neuraxial technique.

When thromboprophylaxis with warfarin is initiated, neuraxial catheters should ideally be removed when the INR is less than 1.5. If the INR is between 1.5-3, removal of indwelling catheters should be done with caution and only in the absence of other drugs that influence hemostasis, and neurologic status should be monitored both before catheter removal and continued until the INR has stabilised at the desired level. If the INR is greater than 3, warfarin dose should be held or reduced in patients with indwelling catheters.

Anaesthetic management of the patient on antiplatelet medication

There are no specific concerns with NSAIDs in the setting of neuraxial anaesthesia .

In patients receiving NSAIDS, the recommendation is against the performance of neuraxial techniques if the concurrent use of other medications affecting clotting mechanisms, such as oral anticoagulants, UFH, and LMWH, is anticipated in the early postoperative period.

Ticlopidine should be discontinued 14 days before neuraxial blockade and clopidogrel 7 days before. Neuraxial techniques should be avoided in patients on platelet GP IIb/IIIa inhibitors until platelet function has recovered.

Anaesthetic management of the patient on herbal therapy

There is no need to avoid neuraxial techniques in a patient on herbal medication.

Anaesthetic management of the patient receiving thrombin inhibitors

In patients receiving thrombin inhibitors the recommendation is to avoid neuraxial techniques.

Anaesthetic management of the patient receiving fondaparinux

The actual risk of spinal hematoma with fondaparinux is unknown. Until further clinical experience is available, performance of neuraxial techniques should occur under the conditions used in clinical trials (single-needle pass, atraumatic needle placement and avoidance of indwelling neuraxial catheters). If this is not feasible, an alternate method of prophylaxis should be considered.

Reference: Terese T. Horlocker et al. Regional Anesthesia in the Patient Receiving antithrombotic or Thrombolytic Therapy. American Society of regional Anesthesia and Pain Medicine Evidence-Based Guidelines (Third edition).

Reg Anes Pain Med.2010;35(1):64-101.

Dr Nageswaran Narayanan
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Editor's note

ASRA Practice Advisories are excellent sources of up to date information but they are in no way binding for anaesthetists in the UK and Ireland. It is also worth noting that this guideline does not really mention peripheral nerve blocks.

The AAGBI has a working party in progress on "Regional anaesthesia in patients with abnormalities of coagulation" which will most likely be producing a report (glossy) towards the end of this year. This report will not restrict itself to neuraxial blocks in patients undergoing therapeutic anticoagulation but will also address pathological conditions and peripheral nerve blocks. Any AAGBI member who would like to comment on this should contact the chair, Dr William Harrop-Griffiths, via secretariat@aagbi.org marking the e-mail "FAO William Harrop-Griffiths" in the subject line.



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Which ? LOGBOOK

By Mike MacMahon

ST4 in Anaesthetics and GAT representative

Recent developments in the technology market, especially the ubiquity of the iPhone, have changed the way in which many anaesthetists use their logbooks. In addition, several web-based sites have been developed that offer additional benefits to older models of logbook. As well as the clear need for trainees to keep an accurate and up-to-date logbook, many consultants who haven't kept a logbook since their CCT may also be interested in the evolving technology in the context of revalidation looming large.

The 2008 article by logbook gurus Hammond and McIndoe¹ in the RCoA 'Bulletin' covers most of the details around the traditional logbooks available through www.logbook.org.uk. The newer logbooks, by comparison, make the generic RCoA model that many of us 'grew up' on look a little cumbersome. This article presents a brief critique of some of the other options available and directs readers to sources of further information or product download.

As a starting point, it is worth considering the concept familiar to those studying for the primary FRCA of 'the ideal logbook', the characteristics of which are:

Ease of data input – Time is money, and logbooks that are slow to input data are instantly inferior.

Safety of data – A system for backing up data that is either automatic or very easy to achieve. The data can be saved onto a hard-drive, portable devices, and increasingly, the internet for safe-keeping.

Data protection – Keeping patient-identifiable data is a hot topic at present, and will be discussed below. The data-set

should be the minimum required to satisfy its purpose, and should be kept in a secure place.

Mobility – Taking lists home and typing them up is time consuming, soul-destroying and is a potential breach of confidentiality. Point of care insertion of information is important.

Reports – The system must be able to produce reports containing the information needed for ARCPs or revalidation, preferably in an attractive and user-friendly way. Being able to isolate specialties, cases or date ranges is also valuable.

Specialist Areas – The difficulty of inputting data from areas outside theatre is a common problem with 'traditional' logbooks. Separate data entry fields for regional anaesthesia, obstetrics, intensive care and pain, whilst currently possible by using separate logbooks, are useful additions to a generic anaesthetic logbook.

Flexibility – The ability to tailor one's logbook to individual needs is a popular request.

Extra Data Recording – Recording the success of a technique is essential to improving practice. The CUSUM scoring for regional techniques is one method of integrating such a facility into the logbookⁱⁱ.

Money – A logbook should be cheap or free to install, and require little or no annual subscription.

PORTABLE LOGBOOKS

iGas log 1.2

This has emerged over the past year and a half as a real favourite, even for those technophobes amongst us. Its ease of



use and speed of data input coupled with the instant access of the iPhone (in the majority of anaesthetists' pockets) account for this success.

It also appears to keep data relatively safe (providing you don't lose your iPhone) as there have been few reports of data loss with phone retention!

On the downside, this system makes it a little awkward to backup data onto a PC hard drive. It can be done, but is certainly convoluted enough to dissuade some people (for details see YouTube video – the key is to manually save the exported file from the web portal to the hard drive as a .csv file).

The reports, whilst including all essential information, are visually unattractive.



issues of anonymity and data protection with respect to logbooks can be found in the Hammond and McIndoe article and in the GAT handbook^{iv}.

FUTURE DEVELOPMENTS

The RCOA are in the process of developing their e-portfolio and plan to incorporate the logbook **summary** into the model. It is, as yet, unclear what the capabilities of the new e-portfolio will be and which logbook models will be best suited to the data transfer process.

Some anaesthetists will be very familiar with traditional logbooks and reticent to try a newer format. I would, however, recommend looking at some of the newer logbook models and considering the facilities that they have to offer. They really do relieve the tedium of inputting cases, provide interesting ways of presenting the data, and, most importantly, provide secure locations for data storage.

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- iii The Caldicott Committee (December 1997). "The Caldicott Report". Department of Health. <http://confidential.oxfordradcliffe.net/caldicott/report>
- iv Madden AP, The GAT Handbook 2009-2010 (20-31), available via www.aagbi.org/gat/publications.htm

This article has no affiliation with 'Which?' Magazines.

There is little flexibility in the programme to allow for specialist areas or custom data collection. It is also not cheap at £17.99 (via **iTunes applications**) and you need to have an iPhone / iPod touch.

Imobilemedic are introducing an updated model of iGas log in late 2009/ early 2010. The new model promises to be a useful database incorporating many of the ideal characteristics (apart from the last one!) iGaslog 2.0 will have all of the features of the 1.2 version, plus automatic web-based backup, separate data entry fields for pain and intensive care cases and even the facility for collecting 'outcome' data. In addition, the reports should be a bit slicker as they will be generated from the web side rather than the iPhone side as they are currently. The downside is the cost, which is 'estimated' at £10 per annum (first year free to iGaslog 1.2 users).

HandBase – For palm pilots, iPhones and other smart-phones.

This 'generic' database can be used on many smart-phones and portable devices. For the enthusiastic logger it provides the flexibility to custom-make a logbook including desired additional information. For the less enthusiastic logger, the LSORA logbook (see below) can shortcut a lot of the customising and provide a tidy handBase platform fairly easily. The database costs between £5 and £15, and whilst not as pleasant to use as its competitors, probably provides the most flexibility. Available via www.ddhsoftware.com

USB Memory Stick Logbook

An excellent concept, especially as most theatres have a PC available. The downsides are that memory sticks are all too easy to lose, and many trusts are in the process of banning all non-encrypted memory sticks. It also lacks the additional benefits of the more advanced logbooks available online. Available via www.logbook.org.uk

WEB BASED LOGBOOKS

Onlineanaesthesia

Credit must be given to the developer (Dr Yogosakaran) of this site, who, as a dissatisfied anaesthetic SHO, developed his own site. It is comprehensive, easy to use and allows for the input of specialist data for intensive care, pain and obstetric cases

(although not regional anaesthesia). Dr Yogosakaran will even input your existing data into the logbook if you email it to him – and it's free!

The only downsides are those associated with all web-based logbooks: it is time-consuming and impractical to log-in while in theatre, and the potential for data loss if it isn't backed up in a second location. Available via www.onlineanaesthesia.com

Anaesthesialogbook.com and the London School of Regional Anaesthesia (LSORA) logbook

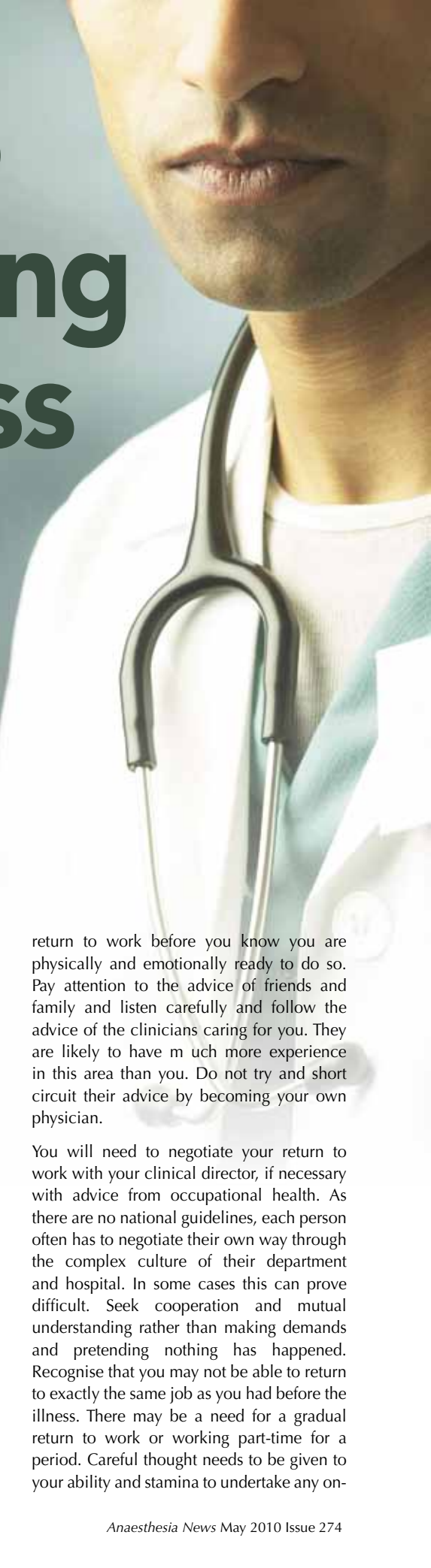
As one would anticipate, the real attraction of this free logbook is the facility to record the detail and outcome of regional procedures. It can be integrated with handBase for use with portable devices (see above). The reports that it produces are pleasant, RCOA compatible, and in addition it will construct CUSUM curves for all procedures. This would be impressive data to produce at an ARCP, especially for trainees awaiting their initial test of competence. Additional data such as drug dosages used and nerve identification methods are also easy to record via drop down menus. Available via www.LSORA.co.uk

A NOTE ON DATA PROTECTION

It is difficult to be sure how much data should be recorded in an anaesthetic logbook. Some may argue that the logbook should contain enough information to allow its authenticity to be verified. However, this may be in contravention of the 'Caldicott' principlesⁱⁱⁱ which stipulate that one should avoid using patient-identifiable data unless strictly necessary and, when usage is essential, the minimum detail to serve the desired purpose should be recorded.

Ultimately each deanery will decide how much patient sensitive data they require. In light of the serious consequences of data loss (dismissal and possible criminal recriminations) it would seem unwise to collect any more than is strictly necessary. Of interest, iGaslog does not keep any patient identifiable information and are unaware of any problems encountered by their users. A wider discussion on the

Returning to work following a major illness



Introduction

This article will try and set out a series of guidelines for anaesthetists thinking of returning to work following a major illness. The article is directed mainly at Consultants and SAS anaesthetists, as trainees may follow a different route usually being looked after by their local Deanery

For the purposes of this article, illness includes any major physical or mental illness that requires time off work, often measured in months rather than weeks. The good news is that on the limited available evidence, for the vast majority the return to work is uneventful. To my knowledge there is little data on how big or complex a problem this is. Anecdotally it would seem to occur in larger departments about once every 5 years perhaps indicating a rate of less than 1% of the workforce at any time. However this figure may mask a much larger group of anaesthetists who do not let colleagues know the severity of their illness, or who decide to take early retirement following an illness. It is sufficiently uncommon that many clinical directors will have little expertise in this area. Advice can however be sought from Occupational Health who can access a much broader knowledge base or from national bodies such as the Association of Anaesthetists or the Royal College of Anaesthetists who have gained experience over the years in advising on these matters.

Having a major illness is often a life altering experience. However once on the pathway to recovery it is normal to start thinking about returning to work. The resumption of a normal work routine often marks the end of the episode and the return to a more normal existence. It is also important to recognise that for some doctors who are the

main breadwinners, a return to work may be perceived as an urgent necessity.

Having a major illness can often lead to periods of reflection and occasional depression as one comes to terms with the disease and its after effects. A modified form of the 'grief cycle' (*On Death and Dying*, Elisabeth Kübler-Ross, Macmillan, NY, 1969) is not uncommon, consisting of moving through various stages from shock to acceptance:

- **Shock:** Initial paralysis on hearing the bad news.
- **Denial:** Trying to avoid the inevitable.
- **Anger and guilt:** An outpouring of anger - 'why me?'
- **Bargaining:** trying to find a way out of the inevitable.
- **Despair and Depression:** Final realisation of the inevitable.
- **Testing:** Seeking realistic solutions
- **Acceptance:** Finally finding the way forward.

Adapted grief cycle

An important observation made over many years is that a modified form of the grief cycle can occur following any major personal set back, not just the death of a loved one. It can occur following the loss of a job or home or following a major life threatening illness. It has also been noted that some people can get stuck at some point in the cycle or inadequately complete a part of it thus leading to a poor outcome and an inability to move on. If this happens psychological or psychiatric help may be required to help find resolution.

There are a number of important aspects for doctors returning to work that need to be understood and addressed. Do not try and

return to work before you know you are physically and emotionally ready to do so. Pay attention to the advice of friends and family and listen carefully and follow the advice of the clinicians caring for you. They are likely to have much more experience in this area than you. Do not try and short circuit their advice by becoming your own physician.

You will need to negotiate your return to work with your clinical director, if necessary with advice from occupational health. As there are no national guidelines, each person often has to negotiate their own way through the complex culture of their department and hospital. In some cases this can prove difficult. Seek cooperation and mutual understanding rather than making demands and pretending nothing has happened. Recognise that you may not be able to return to exactly the same job as you had before the illness. There may be a need for a gradual return to work or working part-time for a period. Careful thought needs to be given to your ability and stamina to undertake any on-

call work. Remember that the department has undoubtedly survived in your absence. It will hopefully welcome you back, but would prefer if it is done in a safe, orderly manner.

If you have been away from the workplace for a prolonged period there should be put in place a 'reintroduction to the workplace' programme. This will consist of spending time in the workplace re-acquainting yourself with patient assessment, drugs, equipment, specialised techniques and team working etc. For most people this will only need to be from a few days up to a week. You should ask for this to be arranged with colleagues whom you trust and respect. The reintroduction should not be seen as a 'fitness to practice' exercise. However following the reintroduction, it is not unreasonable for the clinical director to put in place some screening process to ensure you are still competent i.e. have the skills, knowledge and behaviours appropriate for your role. This is done to ensure that patients will be safely cared for by you and should not be viewed as a personal attack on your abilities or as an obstacle to your return. You should cooperate fully and openly with any screening process.

Occasionally the assessment may throw up some doubts about your competence in a specific area and lead to the requirement of a period of re-training. For most people this can be a distressing period as it casts doubt on your professional abilities and raises fears on whether you will be able to return to a normal work pattern. It is important you fully engage with this process and for the majority a period of retraining usually resolves the issue.

There are a number of very specific conditions which require special mention. One is if your illness results in a serious disability such as a stroke with residual neurological deficit. It is again correct and reasonable to ensure you are able to carry out your role in a safe effective manner. Do not try and hide or down play symptoms as this is likely to be eventually found out and may lead to your integrity being questioned. Experience has shown that with ingenuity and innovative thinking many problems can be overcome. One such example was a doctor with an illness resulting in a progressive weakness of their left arm. It was felt the doctor would not be safe to intubate should the need arise. The use of the Airtraq TM laryngoscope, demonstrated a 100% ability to intubate successfully including rapid sequence inductions.

If you are returning to work following a problem with addiction it is reasonable for your hospital to undertake some form of regular testing to ensure there is no relapse or to exhibit some caution in where you work especially if the addiction has been with opiates. You should try and accept these challenges in an open manner and seek advice if necessary from your psychiatrist.

If you feel you have been dealt with unfairly you may need to approach your medical director for advice. You can also consider approaching national organisations such as the BMA, The Association of Anaesthetists or the Royal College for advice and guidance. These bodies may be able to arrange site visits if it is deemed appropriate.

Recognise set backs can occur. When they happen be open and honest about them and aim to find solutions with your clinical director that matches both parties' needs and expectations. Realise a degree of emotional fragility may be normal. Do not be afraid to discuss them with appropriate people.

Lastly consider the need for a mentor or finding someone who has been through a similar experience. Being able to discuss problems and personal challenges in an open manner can be both a supportive and therapeutic process. Also keep your family and close friends informed of progress. They are your strongest allies. You will often need their help and support.

Dr James Clarke, Welfare Committee

Ed Charlton

9 October 1942 – 4 April 2010



Ed Charlton and Deefer Dog

I am sad to report the death of Dr Ed Charlton, the second Editor of *Anaesthesia News*, and a long time member of the AAGBI, including a spell as Secretary to the Presidency of the late Peter Baskett.

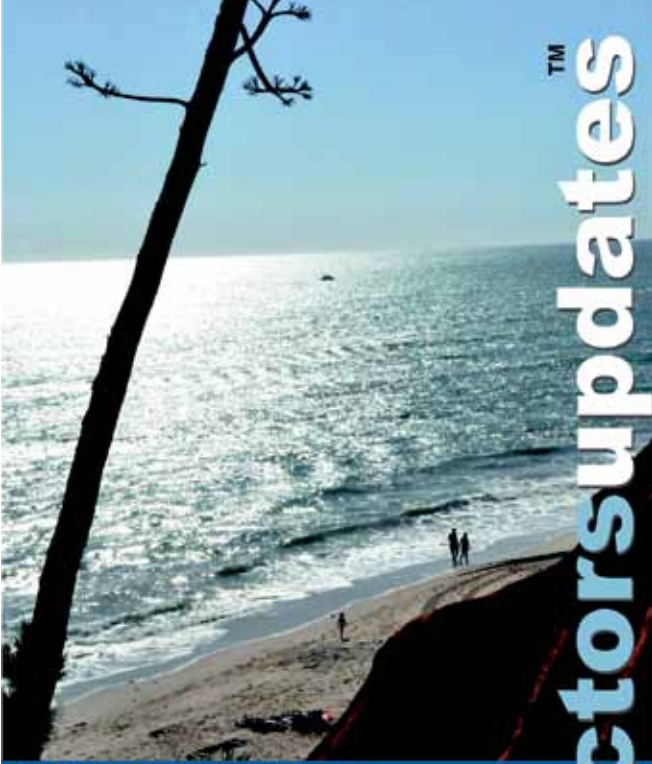
Ed had conceived the idea of *Anaesthesia News* as 'an excuse to get the Calendar of Events out of the parent journal *Anaesthesia* and to free up more space for scientific articles'. He used to publish on a desk in his 'office' at the back of the house in Newcastle, a mass of cut out bits of paper and desk top publishing. Older members will remember the ascerbic comments about Byouknowho and the many dogs involved. There was a suspicion that Deefer Dog and Hoover the Cyber Spaniel might have been expressing the sometimes extreme views of the Editor himself.

I was privileged to be asked to take over the reins of *Anaesthesia News* after Ed had completed seven years as Editor. He had already converted it from a 'broadsheet' style to that of a journal of A4 size. All I had to do was to bring in some colour and a publisher, as my desk top publishing skills are, sadly, lacking.

I first 'met' Ed Charlton when I arrived home one night from an ODA Conference to discover a message on my answering machine. "Ballance, you are a prat" was the message, as I had, apparently, made a disparaging remark about the Association during a debate and this had been reported. I'm happy to say that I managed later to make amends at the Association and to count Ed, his wife Laura and family, as firm friends.

There will, I am sure, be many magnificent obituaries written for Ed. I would just like to record my personal thanks for his allowing me to take on his 'baby' and for being a friend to my wife and I during his latter years. A fighter to the last, Ed battled to the end, eventually succumbing at the Royal Victoria Infirmary in Newcastle, where he worked for the greater part of his professional life.

John Ballance
Editor *Anaesthesia News*, 1999 to 2003



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Quality information tailored to your needs:

an update on NHS Evidence

This article charts the progress of NHS Evidence since its launch in April 2009, and outlines how it can be of practical use in your professional practice and development. In particular, we focus on the specialist collection dedicated to surgery, anaesthesia, perioperative and critical care.

In 2008, Lord Darzi's "High Quality Care for All" review¹ stated that "all NHS staff will have access to a new NHS Evidence service where they will be able to get, through a single web-based portal, authoritative clinical and non-clinical evidence and best practice". This article charts the progress of NHS Evidence since its launch in April 2009, and outlines how it can be of practical use in your professional practice and development.

NHS Evidence: simple to use search tool

The NHS Evidence portal has been designed to be as easy to use as a regular search engine, but only searches across high quality information sources. This saves you time, as information that is of dubious

quality, such as commercially-biased or opinion-based information is automatically filtered out, which is a crucial element of evidence-based practice.

Since its launch, there have been several refinements to NHS Evidence and it is being continually updated. You can now build up a profile, where you can save your



searches and receive the latest news about areas of interest, in one place:

The Specialist Collections

A key part of NHS Evidence is the group of **specialist collections**. These focus on particular conditions or areas of practice, drawing together the best available evidence in the field they cover.

In June 2009, the expanded specialist

collection "NHS Evidence - surgery, anaesthesia, perioperative and critical care" was launched. This is managed as a partnership between The Royal College of Anaesthetists, The Royal College of Surgeons of England and

University Hospitals of Morecambe Bay NHS Trust.



Continued over

The NHS Evidence home page



All of the content in the specialist collection is freely available. Examples of the kind of information you may find include NICE guidance, Cochrane reviews, systematic reviews from the Database of Abstracts of Reviews of Effects and educational material. It is easy to find material in the specialist collection by either searching, or browsing using our custom-built subject tree.

Opportunities for publication

The specialist collection also includes original material. Guest editorials are opinion pieces about current topics of interest and mini-topic-reviews provide an overview of the evidence surrounding a particular area. We have published material on a wide variety of topics, including “**Anaesthesia and fast track cardiac surgery**” and “**The development of critical care in the UK**”.

If you are working on a project and would like to raise awareness amongst the anaesthesia community, or have a particular area of interest, writing for the specialist collection is quick and easy. To find out more, please get in touch with us.

Spreading the word

We are keen to connect with our existing and potential users. In the past, we have had a stall at conferences such as the AAGBI Winter Scientific Meeting or given presentations about the specialist collection. If you are involved with organising events, however big or small, and would be interested in working with us, please contact us via email at speclib@rcseng.ac.uk.

References

1. Darzi, A (2008). *High quality care for all: NHS next stage review final report*. London: The Stationery Office. Available at: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/en/documents/digitalasset/dh_085828.pdf [accessed 10 March 2010].



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The effect of unanticipated perioperative death on anaesthesiologists

Joanne Todesco, Nivez F Rasic, James Capstick;
Can J Anesth(2010)57: 361 - 367

This is a subject which is likely to be close to many of our hearts, as 53% of the 179 staff anaesthetists who responded to this survey had experienced an unanticipated peri-operative death (UPD). The purpose of the study was to elicit the frequency of UPD, more detailed information about the nature of UPD, and to canvas opinion as to appropriate aftermath management. Unanticipated death was clearly defined, and patients who came to theatre and were not expected to survive were excluded.

Only 11 of the 93 deaths (10 occurring at induction) were felt to be anaesthetic deaths. However, a much higher proportion of the anaesthetists (25%) felt as if they were being blamed, perhaps as a result of their role as team leader during the resuscitation attempt, or the 'self protective' behaviour of others. It is of particular interest that 43% of the affected anaesthetists went on to administer further elective anaesthetics immediately following the event, citing surgical pressure, amongst other things, as the reason. A very small number were subject to disciplinary action and litigation.

Perhaps unsurprisingly, the degree of support provided to the anaesthetists involved was generally deemed inadequate. Possible support mechanisms which were suggested included team debriefing, involvement of the anaesthetist in the family conference, relieving the anaesthetist from further duties and assistance with accurate documentation should an investigation ensue. These measures have also been recommended by the Association of Anaesthetists.

Many of the respondents included extensive handwritten notes with their completed survey, some drawing attention to the fact that the death of any patient, anticipated or not, may have a devastating effect on the anaesthetist.

Reference

Catastrophes in Anaesthetic Practice – dealing with the aftermath (2005): Association of Anaesthetists of Great Britain and Ireland.

Dr Fiona McHardy
Consultant Anaesthetist
Victoria Infirmary, Glasgow

Magnetic Resonance Imaging Findings After Uneventful Continuous Infusion Neuraxial Analgesia: A Prospective Study to Determine Whether Epidural Infusion Produces Pathologic Magnetic Resonance Imaging Findings

Davidson et al

Anesthesia & Analgesia Vol 110, No. 1, January 2010

Have you ever wondered what an MRI of the spine looks like after epidural analgesia? Well, that is the exact question asked in a prospective study from Miami Miller School of Medicine that was published in the January 2010 edition of *Anesthesia & Analgesia*. The aim of the study was to determine whether epidural infusion produced abnormal MRI findings.

Why this study?

The study aimed to define a baseline result of MR imaging following an epidural in post partum women. It has been suggested in previous studies that MRI done in epiduralised post partum women have led to confusing/uninterpretable results or even false pathologic findings mimicking those of epidural abscess in the absence of infection.

It has been said that interpretation of MRI can be difficult because of engorgement of epidural venous plexus, unintended epidural vein puncture, CSF leak following dural puncture and epidural catheter placement leading to signal distortion.

An MRI is a valuable tool for early diagnosis especially because the classic triad in spinal abscess of back pain, fever and neurologic deficit occurred in only 13% of patients by the time they were evaluated in one study.

What did they do?

A total of 30 pregnant women (15 in epidural group and 15 in non epidural group) were recruited. Those with history of spine surgery, nitrous oxide use during labour, less than 2 hours of epidural infusion and bloody and wet tap were excluded. The MRIs of the lumbar spine were all performed within 12 hours of delivery.

The epidural group received a needle-thru needle CSW with a 17G Touhy needle with loss of resistance to air technique (2ml air injected) and a 16G spinal needle. Twenty micrograms of fentanyl was used for the spinal and following 10 ml of normal saline, 0.1% bupivacaine infusion with 3 micrograms/ml fentanyl continuous infusion was administered at 10-14 ml/hour.

No epidural remained for more than 12 hours.

There were no unanticipated dural taps or any post epidural complications.

What did they find?

There were no significant fluid collections, haematomas or mass effects on the thecal sac in all 30 women.

Of those who had epidurals:

77% of the MR images showed a small amount of epidural air (<10mm).

50% of the MR images showed an injection track.

43% of the MR images showed paravertebral oedema.

Summary

This study provides a baseline of MRI findings albeit from a small group.

Air in the epidural space is commonly seen after an epidural injection and should not be regarded as a pathological finding.

On the other hand, presence of significant collection or mass effects with neurological symptoms in a postpartum patient should be considered pathological and requires immediate attention.

Dr S Yadthore
Anaesthesia ST5, Wrexham Maelor Hospital

Diethyl ether: down but not quite out?

I was an anaesthetist for 37 years. As a result of the influence of my anaesthetic trainer as a student I knew that this was the specialty I wanted to train in. I started as an SHO in anaesthesia at King's College Hospital London straight from my surgical house job in 1970, and retired in 2007. Looking back I must say that this was the correct choice and that I enjoyed almost every minute of my professional clinical life. My teachers were inspirational and I was fortunate on several occasions in being in the right place at the right time. I now look back over those years, and idle thoughts pop into my head about certain topics and I hope you will allow me to share these thoughts with you.

I started to think of diethyl ether the other evening, I am not sure why. It was rarely used in England, even back in my earliest anaesthetic days. Nevertheless I was trained by members of a generation for whom ether was an important drug and who felt that it was still one worth demonstrating and teaching. I understand that there are a few places, largely in mid-Africa, where it is still used, particularly in those places where anaesthetic training is least available. It is cheap, still widely available, (primarily for its industrial solvent properties) and easy to store. I was told many times it was the safest anaesthetic available, largely because of its fail-safe property of stopping respiration before stopping the heart. However it has largely been abandoned in the developed world because of its inflammability, explosiveness, slow onset and offset of action, unpleasant smell and high emeticity.

In my early anaesthetic days most Boyle's machines still had an ether bottle on the back-bar (fig 1), which probably was more a feature of the age of the Boyle's machine than of the utility of this device, but on a few occasions one of the senior anaesthetists would fill the bottle with the pungent liquid and "show off" his ability to induce, and maintain anaesthesia for simple procedures using it, generally alone but on occasions with a little halothane sneaked in alongside when we weren't looking! I have never seen it administered from a drop bottle onto an open mask, but have heard that technique described often enough that I felt I could have done it if push came to shove.



Fig 1



Fig 2

My most vivid memory was the combination of ether and a Marrett anaesthetic machine (inventor Major Rex Marrett 1945). As this is a piece of anaesthetic history I must mention its major feature which was that it had a lever which allowed the vaporizer to be moved in or out of the circle using a quick flick (fig 2). With the vaporizer in the circle the concentration of ether could become very high and depended for safety on the fact that as the patient's depth of anaesthesia increased the respiration fell and the amount of ether being added to the gases in the circle fell. Remember that this was before the days of end-tidal CO_2 , vapour concentration, pulse oximetry or even routine ECG monitoring! On this occasion the procedure was an abdominal hysterectomy and no additional relaxant was necessary because of the good relaxation achieved by deep ether

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anaesthesia, and no diathermy was allowed by the surgeon because of the high ether levels! Were patients more robust in those days?

I last administered ether anaesthesia in 2000, during a practical session on the Overseas and Developing Countries course in Oxford. It was administered via an EMO apparatus using an Oxford Bellows (à la field anaesthesia setup)



(fig 3) using supplemental oxygen in air. All the patients, who were on a day case breast surgery list, were asked for permission to be both used as demonstration cases and to be given this ancient recipe, and to my surprise readily gave it. Induction was with propofol. I visited all the cases post-operatively and found to my satisfaction that the incidence of nausea and vomiting was not obviously higher than with conventional modern anaesthesia; all had received anti-emetics intra-operatively. However, these patients, and their anaesthetist, did smell of ether for several hours! That course is no longer run in the same way in the UK, so I have no recent knowledge of how any practical training is given.

So did I give the last ether anaesthetic in England? I don't know - perhaps I did, but I hope someone out there will tell me if I didn't. Does it matter that newly trained anaesthetists now know only the theory of ether anaesthesia and have probably never seen it? I think it may. I hope that somewhere there is a stockpile of ether stored in some way so that when civilization dies and we can no longer manufacture the complex compounds used to produce 'modern' anaesthesia we at least can continue to provide some form of painless surgery, and we don't have to go back to the mandrake root. If so then I hope too that someone knows where that stockpile is and where to find the key.

Michael Ward

Consultant Anaesthetist (Retired)

Further Reading: Paul Fenton; An Epitaph for Di-ethyl Ether (1846 - 2009), *July 2009*, World Anaesthesia News; Vol 11 - 1, pp3-4

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An interesting, exciting and varied role in Ethiopia

A description of our Gondar experience and a call to get involved

Gondar is located in the mountainous highlands of Northern Ethiopia at an altitude of 2100m, with the stunning Simien Mountains to the north and Lake Tana – the source of the Blue Nile – to the south. As two British anaesthetic trainees, we have taken a one-year “OOPE” to come to work in the country’s third largest city. Amharic is the local language, but fortunately for us, the language of clinical teaching is English.

The hospital is a university teaching hospital with a catchment population of over 3 million. It has a medical school and provides BSc courses for other health professionals including anaesthetists. There are ten BSc anaesthetists, but no physician anaesthetists in the hospital – hardly surprising in a country with fewer than 15 physician anaesthetists. The five operating theatres cover surgical specialties including general surgery, gynaecology and obstetrics, orthopaedics, urology, paediatrics and ophthalmology. Whilst resources are limited, currently there are pulse oximeters in all theatres and capnography and Dinamap in several.

Many patients present late in the course of their disease and therefore a high proportion of surgery involves complex major procedures. Particularly common general surgical cases include gastrojejunostomies (for gastric outflow obstruction secondary to peptic ulcer disease) and thyroidectomies. The latter group often present with massive goitres and distorted airway anatomy. Occasional thoracic, neonatal and neurosurgical cases are also undertaken. Post-operative care is provided by the surgical interns in the recovery room.

During our attachment here we have been involved in a number of different projects throughout the hospital. We

have largely defined our own roles, which have included clinical and formal teaching of both anaesthetic students and graduates, designing and introducing drug administration charts to the hospital, conducting a number of audits, advising on a medical HDU and constructing anaesthetic machines.

One of our major roles is to develop further training for the BSc graduates. The key goals are to improve clinical practice, as well as promoting evidence-based anaesthesia, increasing involvement in continued professional development and improving staff retention. In order to achieve these goals in the Ethiopian context, an MSc course is the most appropriate solution. We are currently finalising the curriculum and plan to start in September 2010. One critical feature of the proposed curriculum is that it will be very clinically relevant and theatre-based, in contrast to the BSc which contains a large theoretical component.

The curriculum will contain clinical blocks in the following specialties: general surgery/gynae/urology, regional anaesthesia, pain, obstetrics, paediatrics and trauma. There will be some seminar/workshop teaching but most of the course will involve theatre-based clinical teaching, rather than theoretical or academic topics.

In Gondar, there is a small community of expatriates contributing to a very social and supportive atmosphere. We have appreciated wonderful Ethiopian hospitality and been bemused by a calendar system in which it is only 2002! Our excursions to the nearby Simien Mountains and Lake Tana have been memorable highlights.

Overall we have had a varied and challenging time both inside and outside

the hospital. However, what has made our trip so rewarding has been the chance to improve clinical practice, develop individual skills and to have some influence on the direction anaesthetic practice is taking more widely in Ethiopia.

To succeed, the MSc course will need tutors from Britain, for periods of 3 months to a year from September 2010. Senior trainees, consultants or retired anaesthetists in the UK would be ideal. This is an opportunity to provide relevant clinical teaching without having specific clinical commitments. The set-up will enable an interested anaesthetist to settle in rapidly, such that their time here is productive and rewarding. For anyone considering working in a developing country, this is somewhere you could have a very beneficial role.

There is an active and supportive link between Gondar University Hospital and the Leicester NHS Trusts and Leicester and DeMontfort Universities. No previous connection with Leicester is necessary for those interested in working in Gondar. The Link will provide general advice, additional support and will co-ordinate teaching on the MSc course. There are frequent visits by health professionals from Leicester to Gondar and vice versa.

If you have any interest in this project, could consider working in Gondar or would just like to know more, please contact us at b.silverman@doctors.org.uk or j.cheong-leen@doctors.org.uk. The Leicester Link website is www.le.ac.uk/gondar and the administrator Nichole Bruce is at nb50@le.ac.uk.

**Drs Ben Silverman and Jude Cheong-Leen
Anaesthetic trainees from the Imperial and
Central London Schools of Anaesthesia**

The Transfusion Alternatives Preoperatively in Sickle Cell Disease Study (TAPS)

One of the strongly held beliefs in the management of patients with sickle cell disease (SCD) is that preoperative blood transfusion 'is a good thing'. Many patients with sickle disease remain in very good health (albeit with chronic haemolytic anaemia), and suffer relatively few episodes of vaso-occlusive crisis. However, when they attend hospital for relatively minor surgery, they are routinely given a blood transfusion with all the attendant risks, the greatest of which is alloimmunisation due to mismatch of red cell antigens between the donor and recipient populations. Modern anaesthesia care has improved the perioperative management of sickle patients so that factors that may precipitate a sickle crisis can be routinely avoided, for example, dehydration, cold and hypoxia. SCD has been a relatively neglected field of research, so it is very good news that NHS Blood and Transplant (NHSBT) are funding a study to investigate perioperative blood transfusion in patients with sickle disease, and patients are now being recruited to this study in hospitals across the UK. Sickle haematologists and members of the trial management group, David Rees and Jo Howard would like to explain the background to the Transfusion Alternatives Preoperatively in Sickle Cell Disease Study (TAPS), to seek your support to encourage recruitment to this important study for patients with SCD.

*Isabeau Walker,
AAGBI Council*



SCD is the most common severe genetic disorder in the UK, with more than 12 000 affected individuals. Approximately 80% of patients are thought to live in London, although numbers are increasing generally across the UK^{1,2}.

Children and adults with sickle cell disease frequently require anaesthesia and surgery, with tonsillectomy/adenoidectomy, cholecystectomy, splenectomy and total hip replacement being the more common procedures. Several studies have shown an increased risk of perioperative complications in patients with SCD, including complications related to transfusion³.

The high complication rate has led to approaches to perioperative management to try and minimise these. Intravenous fluids are usually started once the patient is nil-by-mouth and oxygen continued in the post-operative period; day surgery and tourniquets are typically avoided. An area of particular controversy has been

the role of preoperative blood transfusion. Transfusion offers the theoretical benefit of correcting anaemia and reducing the percentage of sickle haemoglobin (HbS) in the blood; exchange transfusion can reduce the HbS percentage to low levels without causing a potentially damaging increase in haemoglobin and whole-blood viscosity. However transfusion is associated with a risk of alloimmunisation, transfusion-transmitted infection, and transfusion reactions. Alloimmunisation is more common in the sickle population than in the general population as this is a group who are often multiply transfused, and because there is often a mismatch of red cell antigens between the donor population, and the sickle recipients. Alloimmunisation can lead to delayed haemolytic transfusion reactions, hyperhaemolysis and haemolytic disease of the newborn, and if the patient develops multiple red cell antibodies, can render patients untransfusable. There is also some evidence that transfusion may increase the risk of post-operative infection. Blood is an increasingly valuable resource and ideally should only be used when there is compelling evidence showing benefit.

All patients with SCD having high-risk surgery undergo pre-operative transfusion, typically with an exchange transfusion to reduce the HbS to less than 30%. Such surgery includes operations on the heart, brain, lungs and eyes, when the consequences of vaso-occlusion in the target organ would be devastating or recovery is expected to be prolonged and complicated. The situation for moderate and low risk surgery is less clear. A randomised trial of preoperative transfusion strategies in sickle cell disease was reported 1995⁴. Patients were randomised to either an aggressive (exchange) or conservative (top-up) regime. The two groups had equal rates of perioperative complications (31 vs.

35%). This outcome was despite the HbS level in the top-up group being almost twice that in the exchanged group (59% vs. 31%). The only two deaths were in the aggressively treated group, both patients dying of acute chest syndrome. This absence of benefit of exchange transfusion over top-up transfusion has generally been supported by other observational studies.

Whilst it is generally accepted that exchange transfusion offers no benefit over simple transfusion for medium and low-risk surgery, it is unclear whether simple transfusion results in fewer complications compared to no transfusion at all. Observational studies mostly suggest fairly limited benefit to transfusion. The Transfusion Alternatives Preoperatively in Sickle Cell Disease Study (TAPS) has been established to try and answer this question. It is a phase III trial in which children and adults with HbSS and steady state haemoglobin greater than 6.5g/dl are randomised to transfusion or no transfusion prior to medium and low risk surgery. The remainder of perioperative management is according to the standard protocols used in the institutions caring for the individual. The primary outcome measure is the frequency of all clinically significant complications up to 30 days post-surgery; this includes problems related to sickle cell disease, transfusion, surgery and infection. Secondary outcome measures include the development of alloantibodies, length of hospital stay, volume of transfused blood and re-admission to hospital. The study is funded by NHSBT, and managed by the NHSBT/MRC Clinical Studies Unit. It is taking place in hospitals across the UK, with centres in Toronto, Amsterdam and Rotterdam, and Dublin potentially joining (<http://clinicaltrials.gov/ct2/show/NCT00512577>). Hopefully this trial will result in better management of people

with sickle cell disease in the perioperative period, and a more rational use of blood transfusion, and we seek your support for it.

Further details can be obtained from the Trial Co-ordinator, Moira Malfroy, on moira.malfroy@nhsbt.nhs.uk

David Rees, Department of Paediatric Haematology, King's Health Partners, King's College Hospital NHS Foundation Trust, London.

Jo Howard, Department of Haematology, King's Health Partners, Guy's and St Thomas' Hospital NHS Foundation Trust, London.

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Help for Doctors with difficulties

The AAGBI supports the Doctors for Doctors scheme run by the BMA which provides 24 hour access to help (www.bma.org.uk/doctorsfordoctors).

To access this scheme call 0845 920 0169 and ask for contact details for a doctor-advisor*.

A number of these advisors are anaesthetists, and if you wish, you can speak to a colleague in the specialty.

If for any reason this does not address your problem, call the AAGBI during office hours on 0207 631 1650 or email secretariat@agbi.org and you will be put in contact with an appropriate advisor.

**The doctor advisor scheme is not a 24 hour service*

Anaesthesia for cancer patients: The prognostic implications of anaesthetic technique

We are delighted to publish this Wylie Medal-winning essay by a medical student, which was chosen from an excellent field.

Cancer is the second leading cause of death in the developed world, with metastatic disease developing in up to 50% of those diagnosed (1). It is estimated that 30-40% of breast cancer deaths are attributable to this ability to establish secondaries, making metastatic recurrence the main cause of mortality (2). In 2008, the American Cancer Society reported a one in five risk of breast cancer recurrence within ten years, after five years of adjuvant therapy (3).

Surgery, whether to de-bulk, or to treat adverse consequences of malignancy or indeed its previous treatment, remains recognised as offering the most promising prognosis for many cancers (4). Nonetheless, surgery carries with it the induction of a profound 'neuroendocrine stress response', instituting a compromised immunological status. Coupled with the risk of tumour cell dissemination and release into lymphatic and blood systems, surgical intervention has been labelled a 'double-edged sword' (5).

Even with the best surgical technique cancer recurrence rates remain high; so improvements must be sought in other aspects of management of the surgical cancer patient. The immune system is the body's main defence against malignancy, so suppression via anaesthesia occurs at a rather inopportune time. Acknowledgement of the ability of regional anaesthesia to attenuate the neuroendocrine stress response (6) has provoked investigation into the true potential of anaesthetic technique to affect cancer outcome.

As a result of the *in vitro*, animal and retrospective *in vivo* data discussed below, results of prospective randomised trials such as the large multicentre trial currently underway at the Cleveland Clinic (7) are eagerly awaited. This is an exciting time: if results from large human prospective randomised trials are in accordance with currently observed trends, an adjustment to anaesthetic management may significantly reduce the risk of cancer metastasis.

Minimal residual disease (MRD)

At the time of surgical intervention, many cancer patients harbour micrometastases, and if tumour cells have not yet disseminated, physical manipulation of the tumour on the operating table increases the risk of tumour cell release into the circulation.

Minimal residual disease (MRD) refers to those tumour cells which resist therapy to remain and survive in a protected, quiescent state (8). Inherent genetic instability in partnership with selective pressure of therapy encourage the development of more complex, and permanent acquired-resistance phenotypes; catalytic to disease recurrence.

The ability of disseminated tumour cells and MRD to establish metastases is determined by a complex, interrelated network of factors, not least the efficacy of the host immune responses. Key components of perioperative management play an integral role (Figure 1). In addition to the neuroendocrine stress response, anaesthetic agents and opioids, there are numerous other contributors to perioperative immunosuppression; namely hypothermia, psychological stress, and blood transfusion (9).

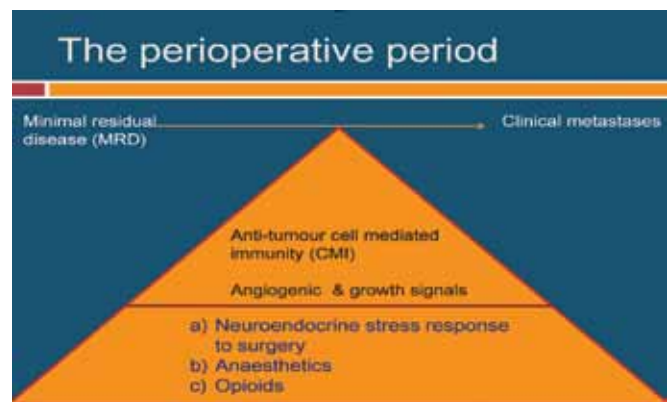


Figure 1: Clinical metastases develop from minimal residual disease (MRD) dependent on a number of variables within the perioperative period.

Natural killer (NK) cells are a particular subset of lymphocytes, which provide frontline defence against malignancy. NK cells spontaneously recognise and kill neoplastic cells, giving them a critical role in the control of circulating tumour cells and micrometastases.

Perioperative immunosuppression

For multiple reasons, the cancer patient can present particular challenges for the anaesthetist. The cancer itself is responsible for cachexia, (in approximately 50% of all cancer patients), weakness and impaired immune function (10). Secondly, chemotherapy carries with it not only the risk of respiratory complications (5-10% suffer an adverse pulmonary reaction), but unsurprisingly, a degree of myelosuppression; making neutropenia a common finding (11).

Further contributing to immunosuppression is cancer pain, which occurs in 25% newly diagnosed malignancies, and in 75% patients with advanced disease (11), and its appropriate treatment. Pain suppresses cell-mediated immunity, and has been shown to enhance the tumour promoting effects of surgery, which highlights

the need for optimum perioperative analgesia (12). However, opioids, a mainstay treatment for post-surgical acute pain, as well as numerous types of chronic pain such as that which is cancer-related, have received considerable attention recently concerning their immunomodulatory properties (13). For example, morphine has been shown to potentiate breast tumour growth via its promotion of survival-enhancing factors, and proangiogenic properties (14).

Finally, anaesthetic drugs themselves have demonstrated the ability to impair a variety of immune components. This includes neutrophils, T cells, and NK cells (15).

The neuroendocrine stress response to surgery

Further transient immunosuppression is induced by surgery. The 'stress response' to surgery is characterised by a profound neuroendocrine (Table 1), metabolic and cytokine reaction.

Increased:	ACTH, cortisol, ADH, GH, catecholamines, renin, angiotensin-II, aldosterone, glucagon, IL-1, TNF, IL-6
Decreased:	Insulin, testosterone

Table 1: The neuroendocrine response to surgery [modified from (16)]; categorised into catabolic (top row) and anabolic (second row) mediators.

Crucially, the stress response increases sympathoadrenal and neuroendocrine activity, increases cytokine production, and impairs numerous immune functions. This includes a marked suppression of NK cell function (17).

Regional anaesthesia has repeatedly been shown to attenuate this neuroendocrine response to surgery (9). This inhibition of adverse immunosuppression is believed to be mediated via blocking of both afferent and efferent neural transmission; preventing transmission from reaching the central nervous system, (hence activating the stress response) as well as blocking efferent transmission of the sympathetic nervous system (6). Consequently, NK cell function should prevail.

Regional anaesthesia & natural killer (NK) cell function

In a rat study that compared the effects of general anaesthesia, systemic morphine, and spinal block (regional anaesthesia), with and without surgery, Bar-Yosef *et al.* (2001), concluded that the addition of spinal blockade to general halothane anaesthesia markedly suppressed the promotion of metastasis by surgery (9).

In an attempt to elucidate the mechanism of this effect, the number and activity of NK cells was investigated. There was one control, three groups who received anaesthesia without surgery, and three upon whom surgical laparotomy was performed. Numbers of NK cells were significantly different between the spinal group and general anaesthetic group only. Curiously however, NK cell numbers in the spinal group were significantly lower than that of the general group. This is particularly interesting as lower numbers of NK cells are associated with an unfavourable prognosis regarding metastatic potential (9).

NK cell activity, like cell number, did not show a favourable response to spinal anaesthesia over general; both methods were associated with a decrease in NK cell activity; more so with spinal and general, than general anaesthesia alone. This NK cell activity was assessed from the blood. Given metastatic potential of this cell

line to the lungs, assessment of pulmonary NK cell activity may be more informative.

General versus regional: retrospective findings

In 2006, Exadaktylos *et al.* (4) compared local recurrence and metastases in breast cancer patients who underwent mastectomy and axillary clearance with, and without paravertebral anaesthesia and analgesia.

After a follow-up of 32±5 months, the results suggest that paravertebral anaesthesia and analgesia reduces the risk of metastasis during the initial post-surgery years. Recurrence-free and metastasis-free survival was 94% (95% confidence interval 87-100), and 82% (95% CI 74-91) at 24 months, and 94% (95% CI 87-100) and 77% (95% CI 68-87) at 36 months in the paravertebral and general anaesthesia groups respectively, P = 0.012.

A retrospective analysis looking at prostate cancer outcome shows similar results. In 2008, Biki *et al.* (6) reported a 57% (95% CI 17-78) reduction in risk of biochemical recurrence in men who had undergone radical prostatectomy under GA with an epidural, compared to a general anaesthesia and opioid analgesia group.

The main limitation of these retrospective studies is that patients could not be randomised. However the authors' conclusions strongly support the hypothesis that anaesthetic technique influences cancer outcome. These findings help to generate further hypotheses, and estimated effect sizes for future larger trials.

Prospective trials have been underway recently: an American trial published some promising results earlier this year (2). In this small study, 22 breast cancer patients undergoing surgery were randomised to receive either a combined general and paravertebral anaesthesia-analgesia, or general anaesthesia with opioid analgesia. The authors then evaluated the effect of serum from these patients, on breast cancer cell function *in vitro*. An oestrogen receptor (ER) -negative breast adenocarcinoma cell line MDA-MB-231 was used to test the hypothesis that serum from patients who had received propofol/paravertebral anaesthetic would attenuate MDA-MD-231 cellular proliferation and migration to a greater extent than that from patients receiving standard general anaesthesia and opioids.

The principle finding of this study was that cellular proliferation of the human breast carcinoma cell was significantly reduced when cells were treated with postoperative vs preoperative patient serum from the propofol/paravertebral group, compared to the general anaesthetic and opioid group (-24% vs 73%, P = 0.01).

No significant difference was seen between mean percentage pre- to postoperative change in cellular proliferation at 2% and 5% patient serum, between the two treatment groups. However at both 2% and 5%, the mean percentage change in cell proliferation was higher in the propofol/paravertebral group than the group treated with sevoflurane/opioid.

No significant difference was found between the two treatment groups regarding cell migration.

Conclusion

Summarised in Figure 2, there are multiple ways in which the anaesthetist may influence the extent of perioperative immunosuppression:

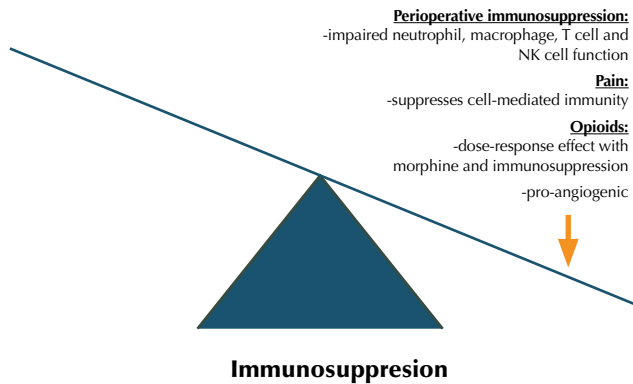


Figure 2: The fine balance of immunomodulation may be tipped heavily in favour of a suppressed immune system, by variables within the anaesthetist's control.

The pivotal role a patient's immune status appears to play in the development of postoperative cancer recurrence and metastasis, has led to parallels being drawn with the process of wound healing. The way in which the capabilities of the immune system dictate whether or not contamination of a wound manifests as a clinical infection, may be analogous to the progression of inherently unstable cancer cells in an immunologically disrupted microenvironment with a weakened host defence system (4).

The Future

There is currently a wealth of laboratory and experimental data in support of the hypothesis that firstly, immunosuppression is a key factor mediating the promotion of metastasis by surgery. Secondly, there is evidence that the protective effects conferred by regional anaesthesia are attributable, at least partly, to dampening of the neuroendocrine stress response to surgery and hence to a reduction in the accompanying immunosuppression.

Crucially, there must be some acknowledgement of the limitations of current evidence for an association between anaesthetic technique and cancer prognosis. At the cellular level, the hypotheses proposed by Bar-Yosef *et al.* (9) need to be investigated; either to support or disprove the current theorised pivotal role of natural killer cells.

Although not deemed statistically significant, the differences observed in mean percentage change in cell proliferation at lower serum concentrations (2% and 5%) between those receiving general anaesthesia and those receiving paravertebral block needs further investigation (2). It may be that only particularly aggressive cancers (if any at all) are receptive to a variable outcome dependent on anaesthetic technique.

An obvious limitation is the size of the populations studied in the trials presented above. A sample size of twenty-two for example (2), may greatly underpower any potential associations. Conversely, as exciting as any observed links may be, the strength of conclusions drawn from such small sample sizes is slight.

Consequently, current evidence suggests that large prospective randomised controlled trials, with long-term follow-up are necessary. One such trial now underway is due to publish its results in 2013 (7). As a Phase III, multicentre prospective trial, randomising breast cancer patients to undergo mastectomies either with a thoracic

epidural or paravertebral anaesthesia/ analgesia, or mastectomy with sevoflurane anaesthesia and morphine analgesia, the results are eagerly anticipated. It is evidence from trials such as this which would hopefully elucidate the importance of anaesthetic technique and the possible role of peripheral opioid μ receptor antagonists in the perioperative period.

An accurate understanding of the underlying mechanisms remains to be determined; there is some evidence to suggest that the purported protective effects of regional anaesthesia on cancer recurrence may depend on tumour type. Specifically regarding colorectal cancer, there seems to be an acknowledgement that there is **no** association between the use of epidural anaesthesia and decreased recurrence (18). Gottschalk *et al.* (2009) found that the use of epidural analgesia for postoperative pain control during colorectal surgery was not significantly associated with cancer recurrence after adjusting for confounding variables (19). It is thus yet to be determined whether this difference in reported cancer types reflects a true difference or may be attributable, for example, to publication bias.

Regional anaesthesia has been shown to attenuate the neuroendocrine response to surgery, to reduce the amount of general anaesthetic required, to provide effective analgesia, to hasten recovery of gut function, and to reduce any opioid requirement. In short, its multiple physiological advantages over general anaesthesia are well acknowledged (Table 3). Despite this, the role of anaesthetic drugs in carcinogenesis remains unclear.

Primary effect of regional anaesthesia	Benefit compared to general anaesthesia
Improved systemic blood flow, reduced platelet aggregation, reduced inhibition of fibrinolysis	Reduced incidence of DVT, less risk of PE
Reduced perioperative blood loss Improved coronary blood flow	Lower rate of blood transfusion
Reduced duration of ileus	Lower incidence of postoperative N&V, Earlier return to normal bowel function
Reduced risk of respiratory depression Improved lung mechanics	Improved oxygen concentration in blood, early extubation, less risk of pulmonary infection
Targeted neuronal local anaesthetic	Excellent postoperative pain control, faster recovery

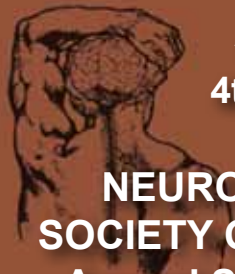
Table 3: The physiological advantages of regional anaesthesia compared to general anaesthesia [adapted from (20)].

A greater understanding of the underlying mechanisms needs to be developed, alongside the acquisition of stronger, longer-term follow-up data from large scale randomised controlled clinical trials. These trials need to look at a range of cancer types. Lastly, consideration must be made for the risks associated with paravertebral block, and these balanced with any benefits verified in the future. In addition to the most feared pleural puncture and pneumothorax, it is imperative to investigate any potential adverse effects from adapting anaesthetic technique or regimen for the purpose of achieving best cancer prognosis.

I would like to thank Dr Mahesh Parmar for his support and guidance throughout my anaesthetics placement, and in the writing of this essay.

Amanda Rhodes

An expanded version of this essay and the references are available on the AAGBI website. <http://www.aagbi.org/foundation/grants/undergraduate.htm>



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Anaesthesia Digested

Anaesthesia May 2010

The world of clinical research is demanding at the best of times; increasing constraints on clinicians' time, complex ethical processes, variations in support from Research and Development departments and the Mental Capacity Act have all contributed to the increasing difficulties faced by 'jobbing' clinicians who wish to study their profession from a more scientific perspective. It is no wonder, therefore, that we are seeing an increase in the number of telephone and e-mail based surveys auditing national practice. There are those who feel that such surveys are a poor substitute for high quality research and that they should be discouraged. However, there can be no doubt that nationwide responses to specific questions on important clinical issues can provide invaluable clinical information which can rapidly translate into improved clinical practice. A rare beast perhaps but, when identified, a governance goldmine.

Such is the paper in this month's *Anaesthesia* from Georgiou and colleagues which concludes that airway monitoring and management for patients requiring mechanical ventilation in the critical care units of the UK and Ireland are substandard; once again the low use of capnography in our ICUs has been highlighted. Some would respond to this by questioning whether evidence exists for such standards. My response to this would be that a lack of evidence is no substitute for common sense; particularly when patient safety is at risk.

There is a common view in medicine that widespread clinical practice takes about five years to change in response to new recommendations. There are many possible reasons for this: doubt over evidence; required infrastructural changes; time for information dissemination; and also, sadly, apathy. I recommend reading Georgiou's article, digesting its implications, and then contemplating: whether we really need evidence to support the recommendations; the infrastructural changes would be minimal; dissemination of information should be as quick as the 'click of a mouse'. Are we prepared to justify five years of substandard practice due to our apathy in the management of our profession's most important clinical entity: the patient's airway?

Georgiou, Gouldson and Amphlett *Anaesthesia* 2010;66.....

Therapeutic hypothermia is another area of practice which has taken considerable time to become widely adopted. There can be little doubt that conflicting evidence and past disappointments from early clinical trials have contributed greatly to this. However, over the past decade, evidence of therapeutic hypothermia following cardiac arrest has increasingly favoured its use.

Induced hypothermia has been widely recognised as having theoretical benefits on the ischaemic brain for many years; but what of its effects on other organs? This is the focus of the article by Kelly and Nolan in this month's *Anaesthesia* which reviews the effects of induced hypothermia on the myocardium. Like so many reviews, it doesn't provide the answers (nor does it claim to), however it successfully brings together the heterogeneous animal and human evidence in an attempt to make sense of this complex physiological phenomenon. In so doing, they provide an eloquent focus on potential novel benefits from current management, and on an important area for future research.

Kelly and Nolan *Anaesthesia* 2010;66.....

The provision of sedation is pivotal in the management of critically ill patients and the past decade has seen an increased appreciation of the impact that drugs, and the manner in which they are used, can have on patient outcome. Nowhere is this challenge more evident than in the world of paediatric intensive care medicine. Children respond to the experience of critical illness in many different ways from adults; sedation is an important therapy aimed at reducing fear and anxiety, and maintaining compliance with other interventions including invasive mechanical ventilation. However, over-sedation is complicated by greater physiological impact and both increased time on mechanical ventilation and length of stay in the ICU. Monitoring the adequacy of sedation is thus a crucial aspect of care for the critical ill patient.

In this issue of *Anaesthesia*, Lamas and Lopez-Herce review the mechanisms for monitoring sedation in critically ill children. In so doing, they highlight the challenges and inadequacies of our current practice but also make suggestions as to the preferred methods of monitoring under differing clinical conditions. The ability to accurately monitor hypnosis and sedation has been a 'Holy Grail' for anaesthetists for decades; yet it remains elusive. Nevertheless, this month's review highlights that appropriate knowledge of the tools available, and their limitations, allows us to use them in the most appropriate and calculated manner.

Lamas and Lopez-Herce *Anaesthesia* 2010;66...

Dr Jonathan Handy
Editor, *Anaesthesia*

Correction

In Paul Fenton's article in last month's AN there was an error; the statement about money donated by the UK government for anaesthesia machines being wasted was inaccurate. The author had received this information in good faith. However, further enquiries have shown the statement to be inaccurate and it should be disregarded"

John Snow's Surviving Ether Vaporizers

– an exciting find

by Henry Connor
and David Zuck



Fig 1. Snow's Ether Vaporizer (RCP model)

As far as we are aware, there are only two original ether vaporizers in existence constructed to the design and specifications of John Snow. Astonishingly, both lay unrecognised for a considerable number of years, one in the museum of the Royal College of Physicians, the other, less excusably, in the Wood Library - Museum of the American Society of Anesthesiologists. The latter was bought from a London dealer for the bargain price of £540 in 1979. This was before the Association had its own premises and somewhere to display the Charles King Collection, so presumably, and sadly, it wasn't on the lookout for historic items of apparatus. The story of the identification of the vaporizer in the Wood Library- Museum (WL-M) was told with admirable candour by the late Rod Calverley [1].

The RCP apparatus has a more uncertain history. At one time it belonged to Sir Benjamin Ward Richardson, Snow's friend and biographer, and there is a strong indication that it was Snow's own vaporizer. It was seen by one of us (HC) on

display in the museum of the Royal College of Physicians, labelled as the chloroform inhaler used by Snow to administer analgesia to Queen Victoria during the birth of her last two children. He recognised it for what it was, and was able to arrange for us to examine it closely and photograph it (Fig.1).

Unfortunately there is no record of how it came into the possession of the College, but it seems likely that it was presented by Richardson's daughter at the same time as other items, which were recorded. We found that it had been on loan to the Wellcome Museum in 1946, when it was displayed, correctly catalogued and labelled, in an exhibition set up to celebrate the centenary of the introduction of inhalation anaesthesia. The misleading labels it currently bears may have been attached by members of Richardson's family after his death in 1896.

We were particularly interested to see where the vaporizer fitted into the classification described by the late Richard Ellis at a meeting of the History of Anaesthesia Society at Huddersfield in

1990. His paper was published in the HAS Proceedings in bare summary only, but enquiry of his widow Elizabeth Ellis disclosed that all his history of anaesthesia papers had been donated to the Wellcome Institute, where we were able to see them. He described his specifications for four 'marks' of Snow ether vaporizer, but from our examination of the apparatus in the RCP, and from detailed measurements of the W L-M example very kindly supplied by the Curator, Dr George Bause, we have reached the conclusion that between Snow's first version, the abortive miniature third, from which some features were retained, and the definitive fourth, he was modifying various aspects of the design so frequently in accordance with his growing experience and his desire for simplification, that it is not possible to say that there was a definitive version of the Mark Two.

A full description of the RCP vaporiser is available in the Proceedings of the HAS [1]. The principal features of the apparatus can be seen in the illustrations. The variations Snow describes of the vaporizing chamber, (Fig.2) which was designed to stand in a warm water bath, were of its depth; but since he would have been well aware that vaporization depends on surface area, it is difficult to understand why he would have gone to the expense of having chambers made, if he did, that varied in depth by



Fig 2. The Vaporizing Chamber



Fig. 3. Interior of Face Mask

only half an inch. It may be significant that with the exception of the breathing tube, the dimensions of the two known apparatuses are virtually identical. Snow first modified what Ellis called the 'Mark 2' towards the end of March, when he

obtained a wider bore breathing tube, which the RCP apparatus has, while the W L-M has the earlier narrow version.

The most interesting developments, however, were at the patient's end of the breathing circuit, and went hand in hand. Between the end of January and early May 1847 Snow used a rather large valve assembly and a mouthpiece to deliver the air-ether mixture. He then experimented with a facemask described by his friend Sibson, before finally designing his own. (Fig. 3) It is exciting to us that the RCP apparatus, unlike the W L-M, has a facemask, but with the lining so crudely sewn that it gives a strong indication of being a home-made prototype, which strengthens the possibility that this was Snow's own apparatus. Also the mask bears an internal stud to which a flap valve could have been attached, making the rather cumbersome valve assembly redundant. While examining several rather dilapidated Snow facemasks in the Science Museum store, we did find one complete, with the valve flap attached as we expected.

A most unexpected find, in its own slot in the carrying case, but not present with the W L-M vaporizer, and never previously described, is a thermometer (Fig. 4) calibrated to show the volume of ether taken up at different temperatures. This is labelled as Dr Snow's Thermo-etherometer. (Fig. 5)

Examination of the RCP apparatus, together with the information provided by Dr Bause, has given us a better understanding of the thought processes that guided Snow to the development of his definitive ether vaporizer. We are grateful to the RCP for allowing us to examine the apparatus in such detail, and to the Science Museum for providing access to the facemasks.

Reference:

1. Calverley RK. An early ether vaporiser designed by John Snow. In Fink BR et al. The History of Anaesthesia – Third International Symposium Proceedings. Park Ridge Ill. 1992;91-99

Fig. 4. Snow's Thermo-etherometer



your Letters

Dear Dr Bythell,

I agree with the proposal for a national anaesthetic record made by Richard Griffiths and Alex Goodwin in February's Anaesthesia News (Anaesthesia News February 2010 Issue 271, p.9).

The same thoughts occurred to me last year when listening to speakers at the highly informative AAGBI Anaesthesia & The Law I & II Seminars. I was moved by the revelation by medicolegal experts that they find it difficult to defend an anaesthetist when there is little recorded in the preoperative assessment section, even if there are no positive findings to document! Our defence is facilitated by recording all the negative findings during the preoperative visit. This is clearly easier to achieve using tickboxes when seeing patients in a tight time-frame.

With the aim of creating a national standard chart, I have secured funding from the Medical Protection Society to be able to undertake a national survey of anaesthetic charts. During this project, I will liaise with Richard Griffiths of AAGBI Council, several expert anaesthetic witnesses, NPSA and the MPS to produce a 'national standard' anaesthetic chart which will be available to all. As Richard & Alex mentioned, this will enable easier auditing and is one less unknown quantity for colleagues to deal with when rotating between hospitals or undertaking locum duties.

May I make a plea that each anaesthetic department responds to my soon-to-arrive request by returning a copy of their anaesthetic chart in the accompanying S.A.E?

Dr Helen Hartley
Consultant Anaesthetist
Guy's & St Thomas' NHS Foundation Trust

Madam,

Your correspondent, Scoop O'lamine, is a genius for demonstrating the fruits of years of hard work by 'those who can't do'. His/her only niggling omission is a little arrow joining the traditional and new MMC charts labelled 'Millions and millions of pounds of taxpayers money'.

If Scoop is short of work perhaps a time-flow tracer chart of educational system development could be of interest. I'm looking forward to seeing the number of 'competitive process' steps.

Plus ça change, plus c'est la même chose.

Edward BickST6,
Bristol

Dear Editor,

Adverse reaction to 'Ametop' (tetracaine) cream

Ametop is a topical local anaesthetic widely used in the paediatric age group before venous cannulation. Adverse reaction to Ametop has rarely been described in the literature.

We had a child who had an adverse reaction after topical application of Ametop.

A 3 year old healthy child weighing 17 Kg was scheduled to undergo adenotonsillectomy and insertion of grommets. The nursing staff applied the usual dose of Ametop cream to the dorsum of both hands pre-operatively. The child had been fasting for 5 hours when Ametop was applied. After 15 minutes, the child became drowsy, pale & unresponsive. I adopted the ABC approach. On examination the heart rate was 60 beats/min & the blood pressure was 90/40. The chest was clear and there was no obvious rash visible. Ametop was immediately removed from the hand and the on-call paediatric trainee was called; however the child regained full consciousness within 5 minutes of the cream being removed. The child had not received any other premedication or any other drugs apart from the topical application of Ametop.

On examination, the skin where Ametop had been applied was normal.

On detailed questioning of her parents, a similar reaction had occurred previously following application of Ametop, but a link with Ametop had not been considered on that occasion. The child was not allergic to any other medications and there was no other significant past medical history.

Though there have been several case reports of adverse reaction to EMLA cream and other topical local anaesthetics it has been rarely described with regards to Ametop.

We believe the most likely explanation for this event is topical absorption of local anaesthetic. There have been case reports of reactions to mucosal application of topical anaesthetic, but not to our knowledge any of peripheral transcutaneous absorption.

We would be interested to know whether anyone else has witnessed this type of reaction.

References:

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- 2) Purpura after application of EMLA cream in two children. Neri I, Savoia F, Guareschi E, Medri M, Patrizi A. *Pediatr Dermatol.* 2005 Nov-Dec;22(6):566-8.PMID
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Dr.Bret Claxton Consultant Anaesthetist Bradford Royal Infirmary

Dear Editor,

I would like to congratulate Drs Carle, Ashworth, Jones and Barker on their excellent letter (1) extolling the virtues of iPhone ownership. As someone who has fully bought into the iPhone culture, I have recently had my bubble burst somewhat.

The only reason for a huddle of people around the traditionally lonely place that is the anaesthetic machine is when a group of like minded iPhone owners meet to discuss the latest 'Apps'. This occurred recently in my theatre when along with myself, my registrar, our CT1 trainee and our ODP, we were joined by a fourth year medical student. As the four of us were showing off our recent purchases, our student pulled out her BlackBerry (Research in Motion, Waterloo, Ontario, Canada). With mild scorn, my registrar questioned her choice of smartphone - she raised one eyebrow and retorted "Yes, but professional people use Blackberrys; school children use iPhones."

The silence was deafening.

Dr Nick Crombie , Consultant Anaesthetist, Selly Oak Hospital

(1) Carle et al. iPhone do you?. *Anaesthesia News.* 2010. 272; 27.

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Depth of Anaesthesia monitor for iPhone

From our correspondent Scoop O'Lamine

A recent winner of the NHS Innovation of 2009, the "iPhone Depth of Anaesthesia Application" will shortly become available for purchase. The AAGBI is delighted to reveal that this application for the iPhone will allow real-time monitoring of depth of anaesthesia at minimal cost. The inventor Dr Ivan O'Brain claims that awareness will become a "never event" with the use of the new technology.

"The device uses Vogal analysis to integrate auditory stimulation responsiveness with changes in cerebral impedance as measured by a unique algorithm" explained Dr O'Brain.

The auditory stimulation is provided via headphones connected to the iPhone and the impedance algorithm measured via a Vox electrode connected directly above the pre-frontal area F235a. "The signal strength is dependent on a good signal, and careful application of a special electrode preparation KWhy is advised for best results".

Figure 1 shows an awake patient undergoing anaesthesia induction with the corresponding changes which occurred during surgery and anaesthesia.

"The sensitivity of the new technology is easy to see" explained Dr O'Brain. "A period of light sedation preceded induction and was followed by anaesthesia for surgery. Note the deeper anaesthesia produced as the induction propofol effect was replaced by isoflurane and remifentanyl".

AAGBI Council is to convene a working party with the NPSA during 2010 to issue guidance in the use of this new technology. "I have no doubt this will become a routine aspect of patient care!" explained a spokesman.

