52nd St Andrew's Day Symposium: Updates on Acute Medicine

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THE HOT JOINT

Dr Philip Riches, Consultant Rheumatologist, Western General Hospital, Edinburgh

The hot swollen joint is a common presentation with a wide differential diagnosis. The most serious cause is septic arthritis for which delayed treatment may result in disability or death. One of the most common identifiable causes is gout which is an increasing problem associated with the global epidemics of obesity and ageing. A presumptive diagnosis of gout is reasonable in patients presenting with typical podagra but where there is suspicion of septic arthritis, joint aspiration and blood cultures must be taken prior to starting antibiotics. Recent guidance on the management of septic arthritis and gout have been issued.[1,2] These guidelines and the challenges to effective management of gout will be discussed.

References

1 Coakley G, Mathews C, Field M et al. BSR and BHPR, BOA, RCGP and BSAC guidelines for management of the hot swollen joint in adults. *Rheumatology*. 2006;45:1039–41. http://dx.doi.org/10.1093/rheumatology/kel163a

2 Jordan KM, Cameron JS, Snaith M et al. British Society for Rheumatology and British Health Professionals in rheumatology guideline for the management of gout. *Rheumatology*. 2007;46:1372–4. http://dx.doi.org/10.1093/rheumatology/kem056a

DELIRIUM VERSUS DEMENTIA IN ACUTE CARE

Professor Emma Reynish, Professor of Dementia Research, University of Stirling & Consultant Physician, NHS Fife

Medical admission units increasingly face the scenario of patients presenting with confusion. The recognition, assessment, management and diagnosis of this presenting complaint often appears less straightforward than would perhaps be the case for other frequently encountered presenting complaints such as chest pain. Understanding the features of delirium and dementia in this situation is crucial for their ongoing management and prediction of long-term prognosis.

This presentation will review the characteristics of cognitive impairment, dementia and delirium. It will then examine the population in acute care presenting with cognitive impairment. It will then aim to clarify what is 'best practice' in our approach to managing these patients and give practical guidance as to those individuals who are appropriate to be referred into a dementia diagnostic pathway.

ACUTE NEURO-RADIOLOGY FOR PHYSICIANS

Dr David Summers, Consultant Neuro-Radiologist, Western General Hospital, Edinburgh

Recent advances in technology have allowed the development of new techniques for acute neuroimaging. Multidetector computed tomography (CT) scanning permits very rapid imaging of the brain and cerebral vasculature in unstable patients, and has resulted in the development of novel techniques such as CT perfusion and time-resolved CT angiography. In magnetic resonance imaging (MRI) there have also been significant advances, with a number of MR techniques such as MR diffusion and spectroscopy becoming widely available. The increase in computing power has reduced MR acquisition times and improved image quality.

Recent protocols and guidelines promote increased use of neuroimaging acutely in the context of suspected stroke and other neurological emergencies. This talk will share some of these technological advances, discuss the benefits and challenges of CT and MR use in the acute patient, and show a number or relevant examples of typical and less common presentations with proposals for investigation pathways.

HIV ON ACUTE TAKE

Dr Michael E Jones, Consultant Physician, Western General Hospital, Edinburgh

The number of people globally living with HIV is increasing as survival improves with wider availability of antiretroviral therapy (ART). Antiretroviral therapy reduces the risk of transmission as well as improving survival. Although new cases are falling globally, they are rising steeply in Eastern Europe and Central Asia. This year approximately 100,000 people have HIV in the UK and 25% are unaware of their diagnosis. Nearly half are

men who have sex with men (MSM), and African men and women contribute disproportionately strongly to the remainder. At diagnosis 50% are late presenters with a CD4 count of <350 and 28% have advanced disease. Patients diagnosed on acute take are therefore most likely to be MSM or African, have advanced disease and have a high mortality risk, 10% for pneumocystis pneumonia. The spectrum of underlying diagnosis will differ between those acquiring their HIV in the UK and immigrants for whom there may be specific geographically determined risk pathogens.

The common syndromes of fever, breathlessness and neurological deficit on acute take will be discussed. Guidelines on the management of opportunistic infections were published online with unrestricted access by BHIVA in 2011.

Further reading

1 M Nelson, DH Dockrell, S Edwards. British HIV Association and British Infection Association guidelines for the treatment of opportunistic infection in HIV-seropositive individuals 2011. *HIV Medicine*. 2011;12(Suppl 2):1–5. Available from: http://www.bhiva.org/OI2011.aspx

WHAT'S NEXT FOR THE HEALTH OF SOCIETY?

Professor Phil Hanlon, Professor of Public Health, University of Glasgow

The UK has seen several phases of public health improvement since the Industrial Revolution, each of which emerged from major shifts in thinking about the nature of society and health itself. I am not delineating firm sequences of events (or implying causality) as this would require an analysis of the relationship between economy, society and culture which is beyond the scope of this presentation. Rather, I suggest that each phase of health improvement can be conceptualised, in metaphorical terms, as a 'wave'.

The first wave is associated with Great Public Works and other developments arising from responses to the social disruptions which followed the Industrial Revolution. The second wave saw the emergence of medicine as science. The third wave involved the redesign of our social institutions during the twentieth century and gave birth to the Welfare State. The fourth wave has been dominated by efforts to combat disease risk factors and manage chronic diseases. Although a trough of public health activity continues from each wave, none exerts the same impact as when it first emerged. Nor has progress been uniformly smooth.

In the second section of this presentation, I turn to the issue of some current and emerging public health challenges, in light of the above analysis. I will focus on obesity, inequalities, and the loss of wellbeing and argue that these are not amenable to earlier or current strategies. The third section of the presentation describes a pattern of exponential growth in a number of key human systems which, together with climate change, points to the imminence of inevitable and involuntary change. My conclusion is that a 'fifth wave' of development is necessary, but will need to differ radically from its forerunners in order to have any chance of tackling such problems.

Further reading

1 Hanlon P, Carlisle S, Hannah M et al. Making the case for a fifth wave in public health. Public Health 2011: 125:30–6. http://dx.doi.org/10.1016/j.puhe.2010.09.004

STANLEY DAVIDSON LECTURE: BUILDING QUALITY AND SAFETY INTO ACUTE MEDICINE

Professor Robert Wachter, Professor of Clinical Medicine, UCSF Medical Center, San Francisco

The hospitalist field in the United States began to gather momentum in the mid-1990s, and has become the fastest growing specialty in US medical history. This growth can be partly explained by the perceived need for an acute generalist – someone who could care for a variety of clinical problems, serve in a coordinative role, and be available around the clock – in American hospitals. While not growing quite as explosively, the field of acute medicine in the UK had a parallel origin and has also experienced rapid growth. While the US hospitalist field initially focused on cost and length-of-stay reduction, the leaders of the field recognised the tremendous opportunity afforded by the patient safety and quality movements, catalysed by the Institute of Medicine reports, *To Err is Human* and *Crossing the Quality Chasm,* in 2000 and 2001 respectively. Since that time, the field has 'branded' itself as having 'two sick patients': the individual patients and the systems in which hospitalists work. This focus is reflected in local activities of individual hospitalist programs, as well as national activities undertaken by the field's professional society – and is reflected in clinical care emphasis as well as major programmes in medical education and research. While the context of medical care and the delivery/insurance system differs greatly between the US and UK, there may be enough common threads between the experience of US hospitalists and UK acute physicians that the former may be relevant, particularly as it pertains to this emphasis on quality and patient safety.

LEGAL ASPECTS OF ACUTE MEDICAL CARE

Dr Roger Smyth, Consultant Psychiatrist, Royal Infirmary of Edinburgh

Legal issues can often be a source of stress and worry to clinicians working in the acute medical setting. Anxieties most commonly relate to the question of whether a patient has the ability to give consent to, and in particular to refuse consent for, needed medical treatment. Often the need for medical treatment is clear and the risks of non-treatment are equally clear, yet the patient refuses to accept some or all of the proffered treatment or indeed refuses to remain in hospital at all.

Clinicians are often aware that there is specific legislation or legal precedent applicable to these cases but lack enough familiarity with legal concepts and specific pieces of legislation to proceed with confidence. These challenging legal cases often overlap with difficult ethical and moral issues and there may also be at least the suspicion of abnormal mental state and hence the added difficulty of how to assess this and factor in its contribution to the decision. The situation is not helped by the fact that recent years have brought a number of new, potentially applicable, acts and legal instruments (e.g. Adult Support and Protection legislation, advance treatment directives etc).

No short presentation can hope to cover all possible situations or all possible applicable law. This presentation will take as its starting point the presumption of capacity in British law and hence the right of the individual make decisions for themselves (which may be unwise and with which we may disagree). Situations where clinicians overrule a patient's autonomy are viewed as exceptions to be explicitly and specifically justified. In this framework, the law and its accompanying codes of practice are discussed as a guide to the identification of the limits to autonomy and the rules for managing and supervising these exceptions.

HYPONATRAEMIA

Professor Chris Thompson, Consultant Endocrinologist, Beaumont Hospital, Dublin

Hyponatraemia is the most common electrolyte disturbance in hospitalised patients and is associated with increased health care costs, increased mortality and a range of previously unrecognised morbidities, including gait instabilities, falls, fractures and osteoporosis. There is gathering evidence that active management of hyponatraemia can ameliorate symptoms and expedite discharge from hospital, thus reducing the cost of in-patient management.

The traditional barrier to active treatment of hyponatraemia has been the absence of a good evidence base to show that restoring normonatraemia improves outcomes, and the absence of a safe, predictable and effective therapeutic intervention. However there is agreement in consensus guidelines that the key parameters which dictate the urgency of treatment of hyponatraemia are the rapidity of onset of the hyponatraemia, and the presence or absence of symptoms. The treatment of chronic hyponatraemia has been revolutionised by the demonstration of increased morbidity and mortality, even with mild hyponatraemia, and the recent availability of the aquaretic compounds, the vaptans. These drugs, which block the antidiuretic action of vasopressin at the V2-receptors on the renal tubules, have been proven in randomised controlled trials such as SALT-1, SALT-2 and the Saltwater studies to reverse hyponatraemia. They therefore offer specific and effective therapy for Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIAD).

The clinical experience with vaptans is increasing exponentially and clinicians are accumulating confidence with the use of these compounds in clinical practice. They remain expensive. Acute hyponatraemia with symptoms is life threatening, but treatment is made hazardous by the risk of neurological sequelae, such as central pontine myelinosis, if correction is too rapid. Guidelines for treatment have changed, with initial bolus therapy to reverse cerebral oedema, followed by more conservative targets for correction over the first 24 hours.

FLUID REPLACEMENT – USES AND ABUSES

Mr Dileep Lobo, Professor of Gastrointestinal Surgery, University of Nottingham

Patients may need parenteral fluid for three possible reasons: a) to correct an intravascular or extracellular fluid volume deficit; b) to replace ongoing losses, or; c) to supply maintenance requirements. It is important to distinguish between replacement of lost fluids and the requirements for maintenance as avoidable morbidity is caused not only by undertreatment but more commonly by excessive fluid administration.

Efficient mechanisms have evolved to maintain salt and water balance in the face of water deficit or excess, or of salt deficit, since these have all been encountered during evolution. Salt excess in the diet, or as a result of treatment has, however, only been encountered in recent times, so that the mechanisms for correcting it are less efficient. The high chloride content 0.9% saline (154 mmol/L vs 95–105 mmol/L in plasma) causes a rise in plasma chloride leading to hyperchloraemic acidosis and exacerbating acidosis due to disease. Hyperchloraemia

may also cause renal vasoconstriction and reduced glomerular filtration rate contributing further to the retention of a saline load.

In health, the average human requires 25–35 mL/kg/day of water, 0.9–1.5 mmol/kg/day of sodium and approximately 1 mmol/kg/day of potassium. This constitutes the maintenance requirement and, in a 70 kg person, amounts to 1.7–2.5 L water, 60–105 mmol sodium and 70 mmol potassium/day. Patients also require 400 calories (100 g dextrose)/day to prevent starvation ketosis. This requirement is usually met by adding 70 mmol potassium to 2–2.5 L of 4% dextrose in 0.18% sodium chloride. If this volume of dextrose saline is exceeded, patients are likely to develop hyponatraemia, which can sometimes be life threatening. When patients require more than 2.5 L/day, it usually means that they have ongoing losses or that they may be hypovolaemic. Patients with ongoing losses must be prescribed like-for-like replacement of the losses in addition to the maintenance requirements. It is therefore important to know the electrolyte content of the fluid being lost in order to provide the appropriate replacement. With chronic or large volume losses, minerals and trace elements such as magnesium and selenium may also need replacement.

Perioperative fluid therapy has a direct bearing on outcome and prescriptions should be tailored to the needs of the patient. The goal of fluid therapy in the elective setting is to maintain the effective circulatory volume while avoiding interstitial fluid overload whenever possible. Weight gain in elective surgical patients should be minimised in an attempt to achieve a 'zero fluid balance status'.

Although oral and enteral fluid administration is limited by gastrointestinal tolerance, it is only too easy to administer excess salt and water by the parenteral route. In view of the serious consequences of errors in prescription much greater care and accuracy are urged in fluid management, particularly by the parenteral route.

SIR JAMES CAMERON LECTURE 2012: EARLY WARNING SCORES

Professor Gary Smith, Visiting Professor, Centre of Postgraduate Medical Research & Education, School of Health & Social Care, University of Bournemouth

Many physiologically-based systems have been developed to facilitate the early identification and management of 'at risk' or deteriorating adult patients in hospital, and to predict adverse clinical outcomes.[1, 2] These can be categorised as single-parameter; multiple-parameter; aggregate weighted scoring; or combination systems.[3] The most commonly used of these systems in the UK are the aggregate weighted systems (also known as early warning scoring systems), whereas the use of single-parameter track and trigger systems predominates in the USA and Australia.

In 2007, the National Institute for Health and Clinical Excellence recommended that physiological track and trigger systems, which employ multiple-parameter or aggregate weighted scoring systems, should be used to monitor all adult patients in acute hospital settings.[4] At approximately the same time, the report of the Acute Medicine Task Force of the Royal College of Physicians, London (RCPL) recommended that '…physiological assessment of all patients should be standardised across the NHS with the recording of a minimum clinical data set result [sic] in an NHS early warning (NEW) score...'.[5] This has led to the recent development of a proposed National Early Warning Score (NEWS).[6]

This presentation will consider the history, characteristics, performance and clinical utility of physiologically-based, 'track and trigger' systems – particularly the early warning scoring systems. It will also review the national recommendations regarding early warning scores and consider the potential benefits of a standardised early warning score for the NHS.

References

1 Smith GB, Prytherch DR, Schmidt P et al. Review and performance evaluation of aggregate weighted 'track and trigger' systems. *Resuscitation* 2008;77:170–9. http://dx.doi.org/10.1016/j.resuscitation.2007.12.004

2 Smith G B, Prytherch DR, Schmidt PE et al. A review, and performance evaluation, of single-parameter 'track and trigger' systems. *Resuscitation* 2008;79:11–21. http://dx.doi.org/10.1016/j.resuscitation.2008.05.004

3 Department of Health and NHS Modernisation Agency. The National Outreach Report. London: Department of Health; 2003.

4 National Institute of Health and Clinical Excellence (NICE). Acutely ill patients in hospital: recognition of and response to acute illness in adults in hospital. NICE; 2007. Available from: http://www.nice.org.uk/CG50

5 Acute Medical Care. The right person, in the right setting – first time. Report of the Acute Medicine Task Force. London; Royal College of Physicians of London: 2007. Available from: http://bookshop.rcplondon.ac.uk/contents/pub235-b42eb97d-209b-4ecd-9127-ef95cc21c819.pdf

6 National Early Warning Score (NEWS): Standardising the assessment of acute-illness severity in the NHS. Report of a working party. London; Royal College of Physicians of London: 2012. Available from: http://www.rcplondon.ac.uk/sites/default/files/documents/national-early-warning-score-standardising-assessment-acute-illness-severity-nhs.pdf

ACUTE GASTROINTESTINAL BLEEDING

Dr Kel Palmer, Consultant Gastroenterologist, Edinburgh

Acute upper gastrointestinal bleeding is responsible for approximately 70,000 hospital admissions each year in the UK. Mortality has probably decreased a little over the past 20 years but 7% of patients currently die during their hospital stay and the mortality of established inpatients is 25%. Almost all deaths occur in patients who have significant co-morbidities.

The most significant causes remain peptic ulcer (35–50% of cases) and oesophago-gastric varices (9–14%), the latter apparently increasing as a consequence of the alcohol abuse and obesity epidemics in the UK.

The National Institute of Health and Clinical Excellence (NICE) have published guidance concerning optimum management;[1] the major conclusions are as follows:

1. Management is based upon active resuscitation followed by therapeutic endoscopy; interventional radiological techniques are used when bleeding does not respond to endoscopic therapy.
2. Risk assessment – Blatchford score prior to endoscopy and Rockall score post-endoscopy- should be undertaken to estimate likely outcome and aid triage.
3. Active resuscitation is important prior to endoscopy, but care should be exercised in prescribing blood transfusion since this may increase the risk of re-bleeding.
4. Aspirin and clopidogrel should usually not be stopped when patients are taking this for good reason at the time of gastrointestinal bleeding. While these drugs increase the likelihood of further bleeding, stopping them increases mortality from vascular events.
5. Endoscopy should be undertaken within 24 hrs in all patients and urgently in unstable, actively bleeding patients.
6. Multiple endoscopic therapies (rather than a single modality) should be applied to cases of peptic ulcer bleeding with major stigmata. Oesophageal varices should be banded; gastric varices are treated by glue injection.
7. Patients presenting with liver disease should receive antibiotic and glypressin therapy before endoscopy
8. Intra-arterial embolisation is first line treatment for ulcers that continue to bleed despite endoscopic therapy. Trans-jugular intra-hepatic porto-systemic shunt (TIPSS) is undertaken when endoscopic therapy for bleeding varices fails.
9. Policies should be in place to prevent recurrent late bleeding (e.g. *H. Pylori* and NSAID recommendations for ulcer bleeds, banding programmes and specific treatments for liver disease).

A UK-wide audit has shown disappointing adherence with these guidelines and there are particular issues concerning the capacity of all units to adhere with several of the recommendations.

References

1 National Institute of Health and Clinical Excellence (NICE). Gastrointestinal bleeding: the management of acute upper gastrointestinal bleeding. NICE; 2012. Available from: http://guidance.nice.org.uk/CG141

ANAPHYLAXIS AND URTICARIA

Dr Malcolm Shepherd, Honorary Clinical Associate Professor, University of Glasgow

With the well-recognised global surge in severe allergy now in its mid-twenties, the children who were in the vanguard have become adults and those that came behind are adolescents. Alongside this is a recognition that anaphylaxis can strike at any time and in any age group making the recognition, management and correct advice of this increasingly prevalent problem an important clinical priority in all aspects of adult as well as paediatric medicine.

Although classical allergic anaphylaxis is well understood and usually recognised and managed appropriately, our understanding of the complex presentations of immune and non-immune anaphylaxis and angioedema mean that an increasing number of differential diagnoses have become apparent.

We will discuss a series of cases that reflect some of the changing priorities in adult anaphylaxis medicine and review the important developments in our understanding of anaphylaxis in adult medical practice.