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Setting standards and encouraging advanced practice

The contributions of senior pharmacists to medical research and the delivery of better health care were highlighted at the United Kingdom Clinical Pharmacy Association's 25th anniversary symposium. Rachel Graham reports

It is not always clear whether "slow-to-wake" patients in intensive care units (ICUs) have suffered neurological damage or are over-sedated with midazolam. This is the conclusion of research carried out by Catherine McKenzie, ICU pharmacist at Guy's and St Thomas' NHS Foundation Trust, London.

Dr McKenzie explained that midazolam is highly protein-bound and is metabolised to 1-hydroxymidazolam glucuronide (1-OHMG), which may itself be clinically active. Patients with multiple organ failure metabolise midazolam unpredictably, potentially resulting in them becoming slow-to-wake (ie, remaining unconscious 36 hours after sedatives had been stopped) even though they have received normal midazolam doses. Such over-sedation may be confused with neurological damage, a condition to which patients with multiple organ failure are also prone. Not knowing whether a patient has suffered neurological damage or is just over-sedated can cause distress to relatives, Dr McKenzie pointed out.

In the study, Dr McKenzie and colleagues assessed 26 intensive care patients who had received midazolam (a mean of 67 hours previously), who were slow-to-wake, and in



Catherine McKenzie (far left) with (from left to right) Valerie Sillito (Boots the Chemists, Aberdeen), Michaela Cox (Kettering General Hospital), Alison Brown (King's College Hospital, London) and Inga Andrew (County Durham and Darlington Acute Hospitals NHS Trust) — all symposium presenters

whom neurological damage was considered possible. They used high performance liquid chromatography and mass spectrometry to detect the blood concentration of midazolam and 1-OHMG. Midazolam and/or 1-OHMG was found in 13 patients. Of these patients, ten were later shown to have no neurological damage. In contrast, neurological damage was later confirmed in 10 of the 13 patients in whom midazolam or 1-OHMG were not detected.

As a result, Dr McKenzie recommended that shorter acting sedatives, such as propofol or remifentanyl, be used in patients with multiple organ failure. Alternatively, if midazolam has been used before or during a patient's time in ICU and they are slow-to-wake, a midazolam/1-OHMG assay should be carried out promptly, so over-sedation can be eliminated. Dr McKenzie won the 2006 GlaxoSmithKline Advanced Practitioner Award for this work.

No advantages with intensive insulin therapy

Intensive insulin therapy (IIT) is no better than conventional insulin therapy (CIT) at achieving tight glycaemic control in mechanically-ventilated patients in an intensive care unit (ICU), according to research presented by Rob Shulman, ICU pharmacist at University College Hospital (UCH).

A retrospective analysis was undertaken of the glycaemic control, length of stay and

mortality of 50 patients who had received CIT (which allowed nurses to control insulin administration to maintain blood glucose levels of between 4.0 to 8.0 mmol/L) and 50 patients who received IIT (which required nurses to use a detailed protocol, with computerised decision support, designed to maintain blood glucose at between 4.4 to 6.1 mmol/L). The patients who received CIT were treated before IIT was introduced at the unit, but would have fitted the entry criteria for the IIT protocol, Mr Shulman explained.

The results showed that there was no significant difference between the two groups in terms of their glycaemic control. IIT was

associated with a trend towards reduced mortality but a longer length of stay in ICU. IIT also used more resources — blood glucose levels needed to be taken about twice as often as was necessary when CIT was used and computer aided decision-support was required.

Mr Shulman explained that the detailed nature of the IIT protocol meant that nurses found it difficult to follow, and a more simple protocol is now used at the UCH ICU unit. The development and use of new computerised closed-loop systems that continuously monitor blood glucose levels and adaptively control insulin dose would be a big step forward, he added.

The 25th anniversary symposium of the United Kingdom Clinical Pharmacy Association was held in Leicestershire on 17–19 November 2006.

Rachel Graham is staff editor of *Hospital Pharmacist*.

Patients benefit from COPD clinic run by supplementary prescribing pharmacist

Some patients with chronic obstructive pulmonary disease (COPD) can now undertake a spirometry test and have their drug treatment optimised by a supplementary prescribing, clinical pharmacist working in the community. This has been made possible by a clinic run by Valerie Sillito, a pharmacist at Boots the Chemists, Aberdeen, who was part of the team that won the United Kingdom Clinical Pharmacy Association's Boehringer Ingelheim respiratory award 2006.

For the past year, Ms Sillito has received GP referrals of patients diagnosed with COPD and smokers over 40 years old who have asthma. She checks patients' inhaler technique, reviews their drug treatment and asks them to take spirometry test.

Of the 44 patients referred to her, 12 have had their treatment changed (in accordance with their clinical management plan), 16 required advice on inhaler technique, 15 have been provided with nicotine replacement therapy, 11 have shown signs of



Using supplementary prescribing to optimise drug treatment is among the services offered at a pharmacist-led COPD clinic in Aberdeen

obstruction and had their diagnosis changed from asthma to COPD and seven have been shown to have no significant obstruction and had the diagnosis of COPD removed from their record.

The clinic has been well-received, Ms Sillito said, both by patients and staff at the local

GP practices. She confirmed that she has not had any patients refuse to come back to the clinic for review or had any patients assigned by their GP to the clinic refuse to come. "The public will get more used to going to a pharmacy for chronic disease management," she added.

Drug triggers could increase ADE reporting

Routinely looking out for the prescribing of certain "trigger drugs" could increase the frequency of adverse drug event reporting, according to Georgina Boon, rotational pharmacist at King's College Hospital, London.

Over the study period, Ms Boon and colleagues reviewed drug charts and patients' notes. They found 88 patients who had been prescribed a total of 115 trigger drugs (ie, one of 16 drugs, adapted from a list from the Institute of Healthcare Improvement, that can be used to treat an ADE). Further investigation showed that an ADE accounted for the use of trigger drugs on 51 occasions, with only two of these having been reported to the trust risk office. ADEs were responsible for all prescriptions for Beriplex (specific indicator of over-anticoagulation with warfarin) and naloxone. Over half of prescriptions for vitamin K, calcium resonium, and hydroxyzine were as a result of an ADE.

Ms Boon added that trigger cards have been developed and given to pharmacists at King's College Hospital to act as prompts to investigate and report ADEs. She won the Hameln best first-time presenter award.

Antibiotic website improves adherence to trust guidelines

An antibiotic website, developed and used at the Queen's Medical Centre, Nottingham, has helped improve awareness, knowledge and adherence to antibiotic guidelines. This is according to Timothy Hills, antimicrobial pharmacist at the hospital and one of the website's designers.

Trust antibiotic guidelines are broken down into sections on the website, to form hyperlinked individual pages. Links to other relevant information, such as assay advice, drug and organism monographs, information about renal dosing and a creatinine clearance calculator have also been added, to improve decision support. The website was launched in May 2004 and advertised to ward staff through posters, presentations and e-mails. Reminder cards were also produced and circulated, Mr Hills said.

The impact of the website was assessed by testing the knowledge of doctors at the hospital about, for example, the existence of certain guidelines and about the first-line treatments (including drug, dose and duration) for selected common infections before the website's launch (winter 2003/04) and afterwards (winter 2004/05). An audit of compliance with trust guidelines about

community-acquired pneumonia (CAP) was carried out concurrently.

The mean score for awareness about the guidelines increased from 66.2 to 85.8 per cent and the mean overall questionnaire score increased from 29.2 to 46.6 per cent. The score for compliance with CAP guidelines increased from 20.8 to 71.4 for severe disease and from 27.8 to 33.3 for non-severe disease. Feedback about the website (requested in the second survey) was positive.

Mr Hills was part of a team that won the Novartis antimicrobial management award. The antibiotic website is available at www.nuh.nhs.uk/qmc/antibiotics.

More award winners

Other award-winning projects were those presented by David Webb, London Eastern and South East Specialist Pharmacy Services (Hameln best oral presentation award, see *Hospital Pharmacist* 2006;13:387), Peter Clarke, East Cheshire NHS Trust, (Pfizer best pre-registration trainee poster award) and Lucy Philpott, Cardiff and Vale NHS Trust (Hameln best poster award).