haemolysis associated with ALP poisoning is very rare, reported previously in only two cases in the literature.^{3,4} Herein, we report a patient with ALP poisoning presenting with intravascular haemolysis secondary to G6PD deficiency.

A 22-year-old man presented to the emergency department with nausea, epigastric distress, vomiting and cola-coloured urine after intentional ingestion of one tablet of ALP. He denied taking any other drug or intoxicant. On admission, he was fully conscious, icteric, normotensive, with mild tachycardia. His breath had a strong garlic odour. The rest of the physical examination was unremarkable. The urine sample obtained was deep brown. The electrocardiogram showed only sinus tachycardia. Arterial blood gases and renal functions were normal. His liver-function tests showed unconjugated hyperbilirubinaemia with no transaminitis, and normal alkaline phosphatase. A peripheral smear obtained showed spherocytes, Heinz bodies and occasional degmacytes. The plasma haemoglobin level was raised at 64 mg/dl and the corresponding urine haemoglobin level was 12 mg/dl. Ultrasound examination of the abdomen showed normal hepatobiliary system and mild splenomegaly. A G6PD assay obtained at presentation showed deficient activity. He was managed with Ryle's tube lavage, aggressive fluid rehydration, sodium bicarbonate and magnesium sulphate. He improved clinically (bilirubin decreased from 9.8 to 4.2 mg/dl) and was discharged after a psychiatric evaluation, family screening and appropriate advice regarding G6PD deficiency.

ALP is a solid fumigant pesticide which acts by liberating phosphine gas (an oxidant), and thus can cause haemolysis in persons with G6PD deficiency.^{3,4} ALP by itself can cause haemolysis⁴ and also secondary to metabolic acidosis related to hypotension, cardiogenic shock, renal failure, seizures and hepatotoxicity. Haemolysis in ALP poisoning is rare despite the common presence of G6PD deficiency, possibly owing to cardiogenic shock and death supervening before clinically evident haemolysis; mild haemolysis is missed in the face of overwhelming systemic toxicity and the presence of less severe variants of G6PD in northern India, where ALP poisoning is common.¹ In conclusion, although haemolysis is a rare presentation in ALP poisoning, detection of associated G6PD deficiency is imperative because of its attendant implications.

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Implementation of the sepsis resuscitation bundle: early experiences in a district general hospital

Mortality from severe sepsis remains unacceptably high at around 30–50%.¹ Globally about 1400 people die each day from sepsis-related illness. The Surviving Sepsis Campaign was introduced in an attempt to improve the diagnosis and management of severe sepsis. Its aims include a commitment to reduce global mortality from severe sepsis by 25% within 5 years (www.survivingsepsis.com). One method of achieving this mortality reduction is by the local implementation of the

sepsis-care bundle, a series of evidence-based interventions shown to improve outcome in patients with sepsis.²

We recently began a pilot campaign to implement the sepsis-care bundles in accident and emergency departments. We devised sepsis-bundle pathways and protocols, and spent considerable time educating the appropriate clinical and nursing staff in their use. We then audited the success of our implementation process in the hope of identifying any problems that may benefit other institutions going down the same road as ourselves.

Our audit was carried out over a 3-month period in early 2006, in our busy accident and emergency department at the district general hospital. During this time, we noted that 16 patients were entered into our pathway (fig 1). Disappointingly, of these 16 patients, only four had all the recommended investigations and interventions completed. We then tried to identify the reasons for difficulties in implementing and adhering to the sepsis-bundle pathway.

In the busy accident and emergency department, more paperwork and another protocol to follow means more time spent with individual

Figure 1 Sepsis resuscitation-bundle pathway for accident and emergency departments. A&E, accident and emergency medicine; HDU, high dependency unit; ITU, intensive therapy unit; MAP, mean arterial pressure.

patients. With the current time pressures and the high turnover of patients, this was not easy for clinicians. Also, at a more basic level, busy clinical and nursing staff would often simply forget to apply the specifics of the pathway to their patients.

We noted that the feeling among some accident and emergency department staff was that there is no need for a new protocol in the management of patients with sepsis. Many staff thought that most of the interventions described in the protocol, such as blood tests, blood cultures, fluid boluses and antibiotics, were already being implemented in an appropriate and timely manner, often well within the recommended 6 h stated in the sepsis bundle. In particular, we noted a reluctance to measure concentrations of serum lactate. This suggests a lack of understanding of the importance of this biochemical marker. Indeed, hyperlactataemia is most important in assessing any patient with sepsis, and ignoring it could easily lead to underestimation of the severity of illness in a patient with sepsis.²

It may therefore prove to be far harder to implement these guidelines than was originally envisaged, especially with accident and emergency departments under increasing pressure to meet targets. Education will obviously play a key part; it is evident that there is a disparity between the evidence-based practice we strive for and the daily clinical practice we undertake. The sepsis bundle can save lives only if it is implemented correctly and appropriately by those making initial assessment and management decisions in patients with sepsis.

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Preventing glass injuries in the emergency department

Glass vials are widely used in emergency departments. Opening a glass vial can be a complicated task as the vial may shatter, resulting in injury which may require treatment. The authors used a novel and safe technique for opening glass vials. Using a 2 ml syringe, after removing the plunger, the larger open end is placed on top of the vial and the top of the vial is broken off. The glass end is contained in the syringe and may then be safely disposed of (fig 1). The 2 ml syringe effectively opens 1 ml vials, and a 5 ml syringe is used for opening 10 ml vials. Of importance is that on some vials, there is a blue dot that indicates a weak spot. Ensure that the blue dot is facing away from you and break away from the blue dot towards you.

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Figure 1 The top of the vial contained in the syringe.

Sedate with caution

We would like to comment on the sedation practice in the emergency department as described by Duncan *et al.*¹

We feel that there is too much reliance on oxygen saturation in patients undergoing sedation while they are receiving supplementary oxygen. This creates a false sense of security. The end-tidal carbon dioxide level is a better indicator of adequacy of ventilation, although it is seldom used during sedation. Monitoring of respiratory rate, respiratory effort and end-tidal CO₂ may identify patients at risk of hypoventilation from oversedation.

Another concern is the use of different opioids in a single patient journey, as there are potential interactions in terms of analgesic efficacy and side effects.²

The dose of midazolam should be reduced in elderly patients and in those with considerable comorbidity. Although reversal of midazolam is possible with flumazenil (Anexate-R), this may be associated with patients experiencing arrhythmias, hypertension and even convulsions. For sedation in elderly patients, we use 0.5-1 mg midazolam intravenously and fentanyl by titration, and wait for a couple of minutes. We then use small boluses of intravenous propofol or inhalation of a low concentration of sevoflurane in an air/oxygen mixture to maintain sedation. We monitor the electrocardiogram, blood pressure, oxygen saturation and the end tidal CO₂. We occasionally add nitrous oxide both as an analgesic and as a hypnotic agent.

We understand the service need for sedation to be provided by non-anaesthetists. However, a multimodal, tailor-made approach to sedation of a patient will provide the best outcome, especially in frail and elderly patients. These patients would be better-off under monitored anaesthetic care.

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