Correspondence

Recent advances in the monitoring and management of diabetic ketoacidosis

Sir,

Given the fact that diabetic ketoacidosis (DKA) can co-exist with acute left ventricular failure (LVF) when the latter complicates acute myocardial infarction, itself an acknowledged precipitating factor for DKA, this is an association that deserved mention and discussion in the above review, especially in view of the problems it poses for clinicians who have to decide between the competing needs of the two disorders.

On the one hand, intravenous fluid (IVF) replacement is integral to the management of the dehydrated patient with DKA, but logic dictates that this is contraindicated in the presence of the coexistence of DKA with LVF. The latter line of reasoning is not well articulated by others, hence the recommendation that, even in this context, IVF should still be administered albeit at much slower than usual rates. Surely, one of the justifications for routine chest radiography, in addition to electrocardiography and cardiac enzymes in DKA, is to diagnose LVF which might be complicating silent myocardial infarction, because chest radiography is a highly specific modality, with high positive predictive value for the diagnosis of LVF. On the basis of their experience which must have included patients with the association of DKA, LVF, and myocardial infarction, the authors should be in a position to advise whether: (a) IV fluids should still be integral to the management of DKA, even when it coexists with radiographically validated LVF, and even LVF-related pulmonary oedema; (b) IV fluids should be withheld but no diuretics given, even in the event of LVF-related pulmonary oedema; (c) whether, especially in the event of LVF-related pulmonary oedema, the twin strategy should be to withhold IV fluids and to administer IV diuretics judiciously; (d) the final option, typically exercised by harassed juniors, is to co-administer IV fluids with bolus IV diuretics, but this seems inherently self-contradictory.

In the context of (b) and (c), the question arises as to whether, in the non-dehydrated patient in whom there has not been a significant degree of antecedent osmotic diuresis, potassium deficits are likely to be sufficiently severe as to require replacement by the intravenous route when the continuous insulin infusion gets under way. My guess is that the potassium deficit is not likely to be profound, and that replacement by the oral route will suffice.

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References

Response

Sir,

We agree that fluid therapy can be a difficult issue in ketoacidosis, but dehydration is the usual problem, and death can result from failure to treat this adequately. Of course, over-replacement may precipitate cardiac failure. We hope we made this clear in stating that: ‘the need for central venous monitoring should be assessed on an individual basis, but may be required in elderly patients or those with pre-existing cardiac failure.’ Central venous pressure (CVP) monitoring is required if patient has significant cardiac disease.
This advice is in line with recommendations from the European Diabetes Policy Group (1998), who advise monitoring CVP if cardiac disease is present and advocate more cautious fluid replacement in the elderly. And the 2004 ADA position statement suggests: ‘in patients with renal or cardiac compromise, frequent assessment of cardiac, renal and mental status must be performed during fluid resuscitation to avoid iatrogenic fluid overload’. With regard to potassium replacement, it is well known that plasma potassium concentrations are a poor guide to total body potassium and that plasma potassium will fall with insulin therapy.

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References
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Recent advances in the monitoring and management of diabetic ketoacidosis

Sir,

In their helpful review on diabetic ketoacidosis (DKA), we are pleased that Wallace and Matthews encourage determination of capillary blood ketone concentrations using portable meters. They state that no randomized controlled trial has investigated the use of routine ketone monitoring in DKA. Bedside monitoring of 3-hydroxybutyrate concentrations in DKA has been used in our unit for some time. Monitoring alone, however, unless accompanied by a change in management, is unlikely to alter outcome.

We performed a randomized controlled trial of an extended insulin regimen in DKA. After correction of hyperglycaemia, intravenous insulin (5 U/h) was continued with dextrose, until 3-hydroxybutyrate concentration determined by a portable meter was normalized. Compared to a conventional regimen, in which insulin doses were reduced after achievement of normoglycaemia, the extended regimen resulted in more effective correction of ketosis and a trend towards more rapid resolution of acidosis. This extended insulin regimen supported by monitoring of capillary blood 3-hydroxybutyrate concentrations with a portable meter continues to be used routinely in our unit.

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References
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Refeeding syndrome: life-threatening, underdiagnosed, but treatable

Sir,

We report a successfully treated case of refeeding syndrome in a high-risk patient. A 73-year-old independent female presented with a 1-week history of diarrhoea and vomiting, lethargy, headache, dizziness and loss of appetite. She hardly ate for almost 10 days prior to admission. She had stable angina and temporal arteritis, diagnosed 4 weeks prior to this admission, for which she had been on a reducing dose of prednisolone 20 mg and azathioprine 50 mg daily. She was dehydrated on admission with a pulse of 110 bpm and a supine BP of 78/60 mmHg. Her routine blood tests including haematology, biochemistry and chest radiography and ECG were normal, except her urea and electrolytes (Table 1). Her ESR was 41 and CRP was 16.8 (normal <10 mg). She was resuscitated