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EDITORIAL II

Does dexamethasone-induced hyperglycaemia contribute to postoperative morbidity and mortality?

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Why is a diabetologist writing in an anaesthetic journal? I hope that by the time you have finished reading this you will reflect on your own practice and consider whether you *may* be contributing—albeit unwittingly—to the postoperative morbidity and mortality at your institution.

Almost everyone reading this will have heard of the obesity epidemic, with a substantial proportion of the population being overweight or obese.[1] In addition, almost everyone reading this will know that being overweight or obese is associated with an increased risk of developing dysglycaemia or type 2 diabetes mellitus.[2] What may not be so familiar to specialties outside of diabetes is that recent data have shown that the mean prevalence of diabetes in all hospitalized inpatients in the UK, regardless of their reasons for admission, is 15%.[3] Finally, almost everyone reading this will know that glucocorticoid use is associated with an increased risk of developing insulin resistance, and hyperglycaemia.[4 5]

Consider the following situation: a 47-yr-old previously fit and well woman with no history of glucose intolerance who has just undergone an uncomplicated gall bladder removal. She has a body mass index of 32 kg m^{-2}. She is just about to be taken off the operating table to go to recovery and, in line with the principles of the Enhanced Recovery After Surgery Program, she is given a single dose of i.v. dexamethasone to minimize the risk of postoperative nausea and vomiting.[6] The patient eventually goes back to the ward, and the anaesthetist moves on to the next case.

Given that glucocorticoids have a multitude of effects on glucose levels what is the potential impact of that single dose of dexamethasone? Does anyone routinely measure the glucose levels of someone without a history of diabetes, despite them being given a drug that is known to raise blood glucose levels? Does it, in fact, matter?

There are now plenty of data to show that perioperative glycaemic control is associated with postoperative outcomes.[7–13] High glucose levels or raised levels of glycated haemoglobin (a measure of prevailing glucose control) are associated with poor outcomes. In particular, recent data suggest that poor postoperative glycaemic control is associated with an increase in the risk of postoperative mortality,[13] with the highest risk in those who were not previously known to have diabetes.

Dexamethasone is a very commonly used antiemetic and in the face of a limited number of drugs available to prevent postoperative nausea and vomiting has been shown to have many advantages.[14] However, whilst there are data to show that dexamethasone use in the perioperative period raises blood glucose levels,[15 16] there almost are no published data on the effects of these raised blood glucose levels of postoperative morbidity and mortality.

Thus, despite the evidence that even a single dose of glucocorticoids can raise blood glucose, and that postoperative glycaemic control is associated with increased risk of morbidity and mortality, how many anaesthetists ask for postoperative bedside blood glucose measurements—especially in people not previously known to have diabetes?

What is needed is a concerted effort to collect data, initially observational, and eventually interventional trial data to assess the effects of glucocorticoid use on postoperative outcomes. The problem is of course the numbers needed to see an effect. If blood glucose levels in people without diabetes only increase by a few millimoles per litre and the effect size is small, then the numbers needed to see a statistically significant difference will be large. Or do the benefits of administering corticosteroids outweigh the potential side-effects of short-lasting hyperglycaemia?[17] Does this mean that this should not or cannot be done? Over the last few years, endocrinologists have been hit by a series of events that have questioned their use of drugs that were used for years before their use was shown to be harmful.[18 19] Maybe the harm done by dexamethasone use should be subjected to the same degree of rigorous scrutiny that was applied to these drugs. Anaesthetists and diabetes teams need to collaborate to ensure that patients are not being harmed by the use of what has always been deemed to be another ‘safe’ drug.

Declaration of interest

K.D. was the lead author on the NHS Diabetes guideline on the management of patients with diabetes undergoing

surgery or procedures, available at http://www.diabetes.nhs.uk/areas_of_care/emergency_and_inpatient/perioperative_management/. K.D. is a full time employee of the National Health Service.

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EDITORIAL III

Aprotinin and cardiac surgery: a sorry tale of evidence misused

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Although evidence from clinical trials is crucial to the advancement of modern medicine, its quality varies considerably. Counterintuitively, high-quality evidence can be ignored and low-quality evidence may lead to the