CORRESPONDENCE

In reply: Stress dose steroids—take another look at the literature

Kristine Urmson, MD, FRCPC

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To the Editor,

I thank Dr. Kehlet for his thoughts¹ on stress-dose steroids in response to our recent letter.² His many contributions to this field inform much of the research in the adrenal insufficiency field as it pertains to surgery. Many children with adrenal insufficiency are given high-dose steroids for the stress of general anesthesia when a stress response may be absent or can be diminished by certain anesthetic techniques.³ This prompted our original survey regarding the attitudes towards the use of stress-dose steroids in children, which highlighted the disconnect between the thinking of pediatric endocrinologists and pediatric anesthesiologists.⁴ Our study showed that 92% of pediatric endocrinologists would recommend stress-dose steroids for a cystoscopy compared with only 45% of pediatric anesthesiologists. This seems to highlight the heart of the discussion of whether general anesthesia was a cause of stress that needed stress-dose steroids or whether general anesthesia can mitigate the stress of surgical procedures.

The historical data mentioned by Dr. Kehlet focused on capturing the degree of cortisol release during surgery so that we can mimic this in patients with adrenal insufficiency. Nevertheless, patients with adrenal insufficiency have shown they do not need high dose steroids to do well with general anesthesia, though they do need physiologic levels of cortisol. In addition to human studies that have shown this, this is also elegantly highlighted by an animal study whereby

adrenalectomized monkeys undergoing surgery had very high mortality rates with sub-physiologic levels of cortisol, but there was no difference among monkeys receiving physiologic steroids or supra-physiologic steroids, and normal monkeys.⁵ Preventing sub-physiologic levels of cortisol seems to be critical to preventing harm to patients, though Dr. Kehlet himself showed that patients can do well despite having worryingly low levels of cortisol (after having their steroids held for 36 hr preoperatively).⁶ Sub-physiologic levels of cortisol seem to be at the root of the cause in the original case studies behind stress-dose steroids.

Perhaps as we go forward, we should continue to focus on reducing cortisol release during anesthesia for patients who are physiologically stable—with or without adrenal insufficiency—rather than supplementing high, and arguably excessive, levels of cortisol in healthy adult and pediatric patients at physiologic levels. Additional research is needed to definitively show whether steroids are necessary or if we are merely reiterating the same dogma.

Conflicts of interest None.

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K. Urmson, MD, FRCPC (✉) ·
Department of Anesthesiology, Perioperative Medicine and Pain
Management, University of Saskatchewan, Saskatoon, SK,
Canada
e-mail: Kristine.urmson@usask.ca

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