

## Stress Dose Causing Distress

Sir,

The risks of failure to provide stress dose of steroids have been well documented so that every endocrinologist spends adequate time to educate the patient regarding the importance of stress dose of steroids. There is a lack of clarity in the literature regarding the type of steroid in stress replacement. The traditional advice is to double or triple the dose of steroid. This is based on the assumption that during medical stress, since the adrenal is unable to augment cortisol production, the patient needs an increase in the dose of exogenous insulin. The normal cortisol production is only about 10 mg/day.<sup>[1]</sup> Since hydrocortisone is equivalent to cortisol, this would be around 10 mg of hydrocortisone per day.

During stress, the serum cortisol increases partly due to Adreno corticotrophic hormone (ACTH) independent mechanism and partly due to decreased elimination.<sup>[2]</sup> So, there has been a trend away from excessive steroid supplementation even during stress, with a dose of 100 mg/day hydrocortisone for major surgery and 25-mg hydrocortisone at induction for minor surgery.<sup>[3]</sup>

Recently, we encountered a 16-year girl with primary adrenal insufficiency. She had been prescribed 5 mg of prednisolone once daily and fludrocortisone 100 µg/day. She developed abdominal pain with nausea during follow-up and the doctor had increased the dose of prednisolone to 5 mg twice daily. After a month, she had presented to us with Cushingoid striae.

The patient had been educated by a practitioner about the stress dose and the symptoms of cortisol deficiency which included nausea and vomiting. She doubled the dose of prednisolone (20 mg/day) whenever she had vomiting/nausea, which was around 3–4 days a week. Consequently, her effective hydrocortisone dose was 80 mg on those days. On endoscopy, she was found to have gastritis with stress ulcers, possibly induced by frequent intake of “stress” dose steroids. Evaluation for *Helicobacter pylori* was negative.

We advised her to take hydrocortisone instead of prednisolone and educated regarding the stress dose of hydrocortisone. The patient was advised that “stress” has a different connotation in medicine. She was advised to increase her threshold for initiation of stress dose. On follow-up, the patient was better and had no further vomiting or abdominal pain.

Our case illustrates the importance of patient education in adrenal insufficiency and underscores the pitfalls of using potent synthetic steroids for hormone replacement. Even in

the background of misunderstanding, hydrocortisone would have had a better safety margin compared with prednisolone in our patient. Since the word “stress” has a different colloquial meaning, it is vitally important to clarify when and how to take extra dose of the steroid. Otherwise, the pendulum might swing to the other side, and the stress dose can end up causing distress.

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### Conflicts of interest

There are no conflicts of interest.

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