

# Controversial Glucocorticoid Use

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## In the Literature

Aharon MA, Prittie JE, Buriko K. A review of associated controversies surrounding glucocorticoid use in veterinary emergency and critical care. *J Vet Emerg Crit Care (San Antonio)*. 2017;27(3):267-277.

## FROM THE PAGE ...

Glucocorticoids are clearly indicated in some circumstances (eg, autoimmune disorders, hypoadrenocorticism). In other circumstances, glucocorticoid use is debated. This article reviewed commonly used glucocorticoids and the available human and veterinary evidence regarding controversial use, particularly in emergency medicine and critical care.

Exogenous glucocorticoids can be classified based on duration of action and relative potency as compared with endogenous cortisol. The anti-inflammatory effects of exogenous glucocorticoids could be assumed beneficial in type I hypersensitivity, but evidence is lacking. Further, most effects of glucocorticoids require nuclear transcription and creation of new molecules and therefore may occur several hours after administration—potentially well past the window of benefit for anaphylaxis. For human patients with acute respiratory distress syndrome, short-term high methylprednisolone doses may be associated with worse outcomes. A longer course with a lower dose may have some protective effects. Evidence in veterinary medicine is lacking.

Numerous studies have investigated steroid use in acute spinal cord injury and intervertebral disk disease. Some studies showed methylprednisolone to improve neurologic outcome and to be more beneficial as compared with dexamethasone. However, significant side effects are associated with its use.

Experimental models have shown glucocorticoids to be beneficial in traumatic hemorrhage and shock, with some evidence of improved cardiovascular performance,

particularly if administered before the trauma. Findings have been inconsistent and have not been demonstrated in clinical patients. Further, potential for hyperglycemia, hypernatremia, and GI ulceration have been demonstrated with steroid administration.

Strong evidence from human medicine suggests a potentially harmful effect of glucocorticoids on patients with traumatic brain injury. Glucocorticoids should not be used in these patients.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Glucocorticoids should be dosed based on relative potency. For example, dexamethasone is approximately 7 times more potent than prednisone, and dosing should be adjusted accordingly.
- 2** Use in patients with acute respiratory distress syndrome, acute spinal cord injury/intervertebral disk disease, or type I hypersensitivity/anaphylactic reactions is debatable because of conflicting evidence. They may provide some benefit but can be associated with adverse effects.
- 3** Based on strong evidence in human medicine, glucocorticoid use in patients with traumatic brain injury is contraindicated. Lack of supportive evidence and potential adverse effects suggest that glucocorticoids should be avoided in patients experiencing traumatic hemorrhage or shock.