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## Hypokalemic Myopathy in a Dog with Addison's Disease



**A** 7-year-old spayed female standard poodle with primary signs of lethargy and loss of appetite was diagnosed as having adrenocortical hypofunction based on basal and post-ACTH serum cortisol concentrations of 0.3 and 0.4  $\mu\text{g}/\text{dl}$ . Initial blood tests included a serum biochemistry profile and hemogram. Despite normal serum sodium and potassium concentrations (146, reference 139–154, and 5.1 meq/L, reference 3.6–5.5, respectively), the clinical signs and breed predilection suggested atypical Addison's disease, prompting the ACTH stimulation test, the gold standard diagnostic test for hypoadrenocorticism. The dog was treated with 1 intramuscular injection of DOCP at the standard dose of 1 mg/lb.

The patient developed generalized muscular weakness over the next 2 weeks that also caused a flaccid ventral cervical posture (**left**). Serum

electrolytes at this time showed the sodium at 154 meq/L and potassium at 3.2 meq/L. In-hospital treatment for the presumed hypokalemic myopathy consisted of intravenous 0.9% sodium chloride solution with 50 meq potassium chloride per liter of saline. Prednisone was given at a dose of 0.3 mg/kg/day in order to provide the essential basal glucocorticoid needed while the further use of DOCP was discontinued.\* The dog showed dramatic improvement after 24 hours and appeared normal by the second day. The serum sodium and potassium levels at that time were 160 and 3.85 meq/L, respectively. The reexamination 1 week later was normal (**right**). ■

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\* The mineralocorticoid hormone (DOCP) was not indicated to treat this dog's atypical Addison's disease because her serum sodium and potassium levels were normal while her glucocorticoid levels were depleted. This misunderstanding caused this dog's presumed renal potassium loss because of the action of DOCP at the renal distal tubule. Treatment for glucocorticoid-depleted patients need only include a glucocorticoid drug.

ACTH = adrenocorticotrophic hormone; DOCP = desoxycorticosterone pivalate