Exploring New Medical Treatments for Hyperadrenocorticism (Cushing's Syndrome) in Dogs

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RESULTS: Researchers identify promising compounds for treating canine Cushing's syndrome

Hyperadrenocorticism, also known as Cushing's syndrome, affects thousands of dogs worldwide each year. The disease is characterized by excessive production of a hormone called cortisol, either from an outside source (such as administration of glucocorticoid drugs like prednisone) or inappropriate production in the body by either a pituitary or adrenal tumor. Although the disease can be managed with medication or surgery, both methods can be expensive and are prone to complications and medication side effects. More targeted treatments would be a safer option for these canine patients.

Morris Animal Foundation-funded researchers at Utrecht University recently tackled this problem using an elegant laboratory system to test a large number of potential blocking agents. The team developed cell cultures of canine adrenal gland cells, the source of cortisol production. Once they established the cell cultures, the team tested a panel of potential blocking compounds and measured a number of different parameters, including production of cortisol, genetic markers of cell stimulation, and cell viability among many other measurements. The team identified two compounds that significantly inhibited cortisol production in both normal adrenocortical cells and adrenocortical tumor cells that merit further investigation as potential new treatments for Cushing's syndrome in dogs.

One of the exciting aspects of this study was that no animal subjects were used, allowing for noninvasively screening of a larger number of compounds. This model, now established, can be used in future screening studies of compounds.

In addition, the project allowed numerous students to participate in the research. Dr. Karin Sanders, a PhD student, was awarded two prizes after presenting the results of the study at two international veterinary conferences, which was a great honor for not only Dr. Sanders but the entire research team.

Findings from this study are published in *Domestic Animal Endocrinology*, November 2017, "Steroidogenic Factor-1 Inverse Agonists as a Treatment Option for Canine Hyperadrenocorticism: In Vitro Study."