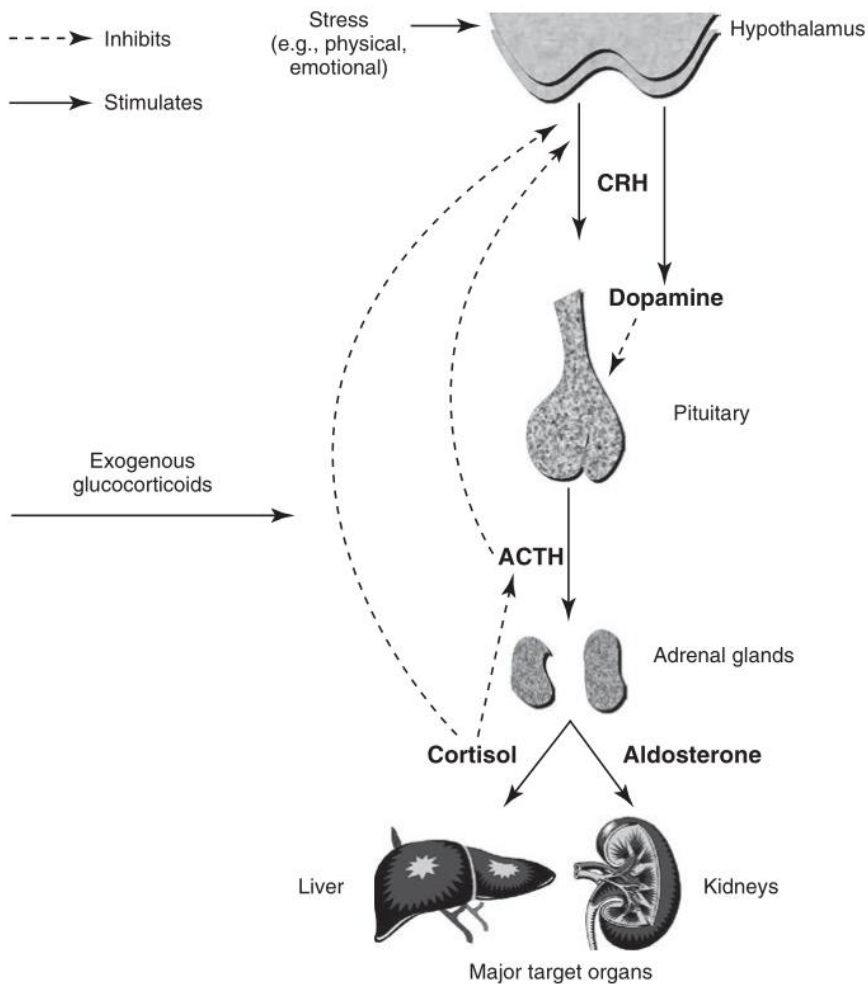


Хиперадренокортицизъм (Кушинг синдром) при КЧ

Дефиниция

Синдромът на Кушинг е понятие, което обхваща съвкупността от клинични и биохимични промени, които са резултат от хронично повишената концентрация на глюкокортикоиди. Адренокортикотропно-зависимият излишък на кортизол, дължащ се на аденом на хипофизата, се нарича болест на Кушинг и е отговорен за 80% от ендогенния синдром на Кушинг.

Етиология



Видове хиперадренокортицизъм:

АКТХ-зависим синдром на Кушинг бива:

- 1) **Болест на Кушинг**, още Хипофизо-зависим хиперадренокортицизъм (Pituitary-Dependent Hyperadrenocorticism) – 85% от КЧ с хиперадренокортицизъм (ХАК) са с такава форма. Най-често се дължи на тумор на хипофизата, който най-често е 3 мм в диаметър. Хипофизните тумори могат да бъдат микроаденоми (<10 мм) или макроаденоми (>10 мм). Често АКТХ води до увеличаване на надбъбречните жлези.
- 2) **Ектопичен АКТХ синдром** – Това заболяване се причинява от група тумори, които отделят АКТХ.

АКТХ-независим синдром на Кушинг:

- 1) Екзогенни глюкокортикоиди
- 2) Тумор на надбъбречната жлеза (аденом или карцином)

Епидемиология

90% от КЧ с ХАК са над 6-годишна възраст.

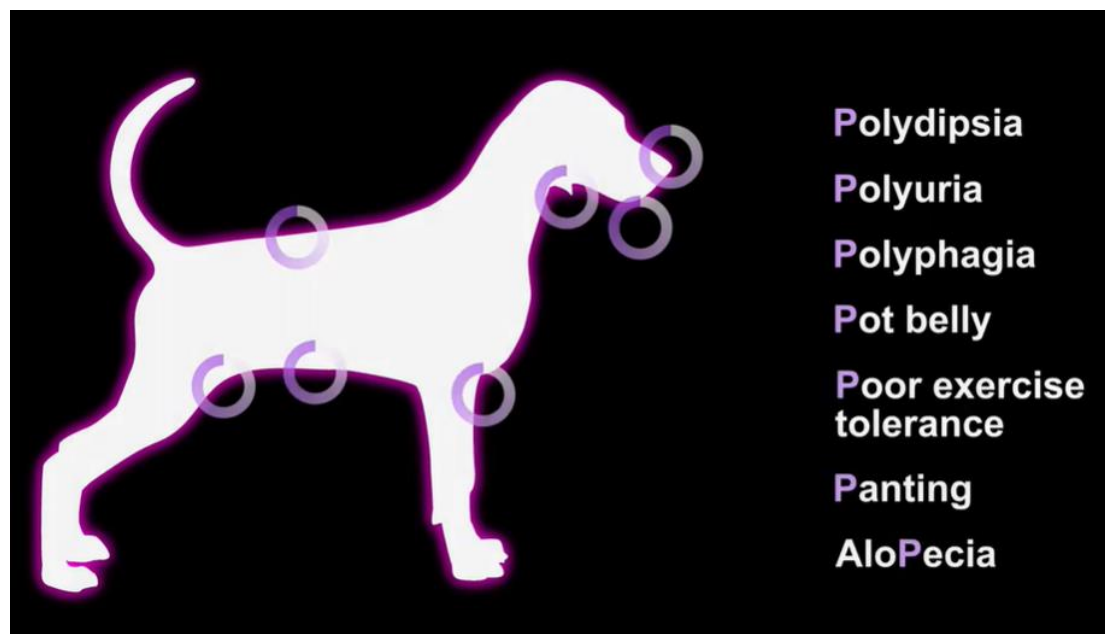
Патогенеза

Клиника

COMMON	LESS COMMON	UNCOMMON
Polyuria/polydipsia	Lethargy	Bruising
Polyphagia	Hyperpigmentation	Thromboemboli
Panting	Comedones	Ligament rupture
Abdominal distention	Pyoderma	Facial nerve palsy
Endocrine alopecia	Thin skin	Calcinosis cutis
Hepatomegaly	Poor hair regrowth	Pseudomyotonia
Muscle weakness	Urine dribbling	Testicular atrophy
Muscle wasting	Insulin-resistant diabetes mellitus	Persistent anestrus
Systemic hypertension		

Modified from Behrend EN, et al.: Diagnosis of spontaneous canine hyperadrenocorticism: 2012 ACVIM consensus statement (Small animal), *J Vet Int Med* 27:1292, 2013.

*Categorization of frequency is based on identification at the time of initial presentation.



Pot belly

Caused by:

- hepatomegaly
- increased bladder size
- fat redistribution
- abdominal muscle weakness

Hepatomegaly is due to glycogen deposition (i.e., "steroid hepatopathy"). Muscle wasting is a direct result of protein catabolism due to excess cortisol. The mechanism responsible for fat redistribution is not understood.

Failure to Regrow Shaved Hair

Thin Skin, Pyoderma, Seborrhea, and Demodicosis

Hyperpigmentation

Bruising, Reduced Subcutaneous Fat, and Striae

Calcinosis Cutis and Cutaneous Metaplastic Ossification

Respiratory Signs: Panting and thromboembolism

Sudden Acquired Retinal Degeneration Syndrome - Sudden acquired retinal degeneration syndrome (SARDS) is an idiopathic retinal disorder that produces sudden, permanent blindness in adult dogs. The syndrome is characterized by non-inflammatory degeneration and loss of retinal photoreceptors.

Усложнения от ХАК:

Urinary Crystals and Calculi

Hypertension

Hypothyroidism - Determining which disease is present can be difficult because hypercortisolemia causes secondary hypothyroidism and may also alter thyroid hormone binding to plasma proteins, enhance the metabolism of thyroid hormone, or decrease peripheral deiodination of thyroxine (T4) to triiodothyronine (T3) (Ferguson and Peterson, 1992). Approximately 40% to 60% of dogs with HAC have decreased basal serum T4 and/or T3 concentrations, and 24% have decreased free T4 concentrations (Peterson et al, 1984b; Ferguson and Peterson, 1992).

Diabetes Mellitus

Gallbladder Mucocele

Pulmonary Thromboembolism

Диагностика

TEST	ABNORMALITY
Complete blood count (CBC)	<ul style="list-style-type: none"> • Mature leukocytosis • Neutrophilia • Lymphopenia • Eosinopenia • Erythrocytosis; mild
Serum chemistries	<ul style="list-style-type: none"> • Increased alkaline phosphatase (ALP; sometimes extremely elevated) • Increased alanine aminotransferase (ALT) (usually mild) • Hypercholesterolemia • Hypertriglyceridemia • Hyperglycemia • Increased bile acids • Decreased blood urea nitrogen (BUN)
Urinalysis	<ul style="list-style-type: none"> • Urine specific gravity less than 1.015, often less than 1.008 • Proteinuria
Radiography/ultra sonography	<ul style="list-style-type: none"> • Hepatomegaly • Excellent abdominal contrast • Osteoporosis • Calcinosis cutis/dystrophic calcification • Adrenal calcification (usually adrenal tumor) • Pulmonary thromboembolism (PTE) (rare) • Calcified trachea and main stem bronchi • Pulmonary metastasis of adrenal carcinoma
Blood pressure	<ul style="list-style-type: none"> • Hypertension
Thyroid testing	<ul style="list-style-type: none"> • Low thyroxine (T₄) concentrations • Triiodothyronine (T₃) concentrations

Exposure to exogenous and endogenous glucocorticoids increases synthesis of CIALP (a type of ALP) as well as other enzymes in the liver.

Glucocorticoids antagonize the effects of insulin, leading to increased hepatic gluconeogenesis and decreased peripheral glucose utilization.

In two studies, approximately half the dogs with HAC had a **urinary tract infection (UTI)** at the time of initial examination.

СПЕЦИФИЧНИ ИЗСЛЕДВАНИЯ:

Urine Cortisol-to-Creatinine Ratio – взима се проба урина и се измерва кортизолът.

АКТХ стимуляционен тест (Adrenocorticotrophic Hormone Stimulation Test) – the gold standard for diagnosis of iatrogenic HAC. The test can begin at any time of day and without patient preparation.

5 µg/kg cosyntropin or tetracosactrin intravenously with a maximum of 250 µg per dog; samples for cortisol measurement should be drawn before and 1 hour after administration.

if a dog's results falls within the range, HAC, unfortunately, cannot be ruled in or ruled out.

You can use Cortrosyn® or Synacthen.

Synacthen - Peak cortisol response occurred at 120 to 180 minutes after administration (250 µg/dog IM or 5 µg/kg IM). In comparison, the peak response to a non-depot cosyntropin occurred earlier (i.e., at 60 to 90 minutes) and was significantly higher.

Стимуляционен тест с ниски дози дексаметазон (Low-Dose Dexamethasone Suppression Test) – инжектира се дексаметазон 0,01 мг/кг ИВ (напр. Glucortin-20), като се взимат три проби – непосредствено преди инжектирането на дексаметазона, 1 час след инжектирането и 2 часа след инжектирането. Изпращат се в специализирана лаборатория (за България – VetDiaLab).

Стимуляционен тест с високи дози дексаметазон (High-Dose Dexamethasone Suppression Test) – протоколът е сходен с предходния, но дозата на дексаметазона е по-висока (0,1 мг/кг).

Лечение

Trilostane (Vetoryl®) или Mitotane (Lysodren®).