

CANINE CUSHING'S SYNDROME

What is Cushing's Syndrome

- Spontaneous canine hyperadrenocorticism or Cushing's Disease is one of the most frequently diagnosed endocrine diseases in veterinary practice, occurring predominantly in middle-aged dogs. It is a chronic disease with multiple effects on the body due to excessive secretion of the hormone **cortisol** by the adrenal gland.
- In 85 % of cases the cause is an increased production of a messenger hormone by the pituitary gland located in the brain. This causes both adrenal glands to enlarge under the constant stimulation. In the remaining 15 % of cases, there is a tumour of the adrenal gland itself and it secretes cortisol hormone independent of any stimulation by the messenger hormone.

Symptoms

The most common symptoms noted are increased **thirst** and urine production (previously house trained dogs may start urinating indoors), increased **appetite**, **sparse hair**, **weakness** and **abdominal enlargement**.

Diagnosis

- Diagnosis is by means of a series of tests. No test is 100% diagnostic, thus up to three different tests may need to be conducted.
- Initially your vet may request a **baseline blood** and **urine sample** to see if there are any abnormalities suspicious of this disease. You may be asked to **measure** the total amount of **water consumed** by your dog in one day.
- If the initial tests lead to suspicions of the disease; your dog will have to be hospitalised for the day and further screening tests performed.
- Either an **ACTH Stimulation Test** or a **Low Dose Dexamethasone Suppression Test** (LDDS) is done depending on the presence of other diseases or medication your dog may have received. In 15 % of LDDS tests, the location of the disease can be determined.
- If this test comes back as positive for Cushing's it is necessary to find out what the cause is i.e. is it due to a pituitary disease or a primary adrenal disease. This will impact on the therapeutic induction time and prognosis.
- Several methods exist to **distinguish the origin**. As a follow on to the ACTH stimulation test another suppression test can be performed, this is known as a **High Dose Dexamethasone Suppression Test** (HDDS). Alternatively imaging can be used to directly examine the adrenal and pituitary gland. These include **X-rays** and **ultrasound** of the abdomen and **MRI** of the brain.

Treatment

- Treatment is advised as if the disease is left to progress it can lead to high blood pressure, blood clots, recurring urinary tract infection, diabetes and weakness of the muscles.
- Treatment includes one of the following drugs:
 - **Mitotane**: a chemotherapy medication that kills cells of the adrenal gland thus decreasing the synthesis of cortisol. This requires a **careful** induction period over 7-10 days. An ACTH stimulation test and electrolyte measurements are then performed in hospital. If the adrenal gland is suitably shrunk the dosing frequency is reduced to weekly, which can be divided into two doses.
 - **Trilostane**: inhibits the conversion of the precursor of the hormone cortisol to its final active form. Consequently no damage is done to the adrenal gland itself and cessation of treatment causes re-emergence of clinical signs. This reversibility however makes it a safer alternative to mitotane, but it may be less effective in some cases and can be prohibitively expensive. It is given daily long term.
 - **Please note that both of the above drugs are not without side effects and problems.**

FOR FURTHER INFORMATION PLEASE CONSULT YOUR VET

犬隻庫欣氏綜合徵

甚麼是庫欣氏綜合徵

- 庫欣氏綜合徵或稱腎上腺皮質功能亢進症(Hyperadrenocorticism)是指身體分泌過量的皮質類固醇(Cortisol)所引起的慢性疾病，能引起多種病徵。此病乃其中一種最常見的內分泌疾病，罹患此病者多為中年犬隻。
- 犬隻庫欣氏綜合徵的個案中有 85%是由於腦下垂體分泌過多促腎上腺皮質激素 (ACTH) 引起。在過量的 ACTH 刺激下，患病犬隻的兩邊腎上腺均會增大。其餘 15%個案則由腎上腺腫瘤引起，此類病者的皮質類固醇分泌並不受 ACTH 影響。

病徵

常見病徵為大量喝水，尿頻（部份原只在室外小便的犬隻會因太尿頻而轉在屋內小便），食慾增加，雙側對稱脫毛，虛弱，腹脹及腹部肥胖。

診斷

- 診斷基本上依靠一系列的測試。目前並沒有獨立測試能達 100%準確率，故獸醫一般依賴最少三種測試。
- 初步測試包括驗血（生化指數和血球指數）和驗尿。另外獸醫可能要求閣下準確量度患病犬隻的每日飲水量。
- 若獸醫懷疑犬隻罹患庫欣氏綜合徵，獸醫會要求該犬隻留院半天以進行 ACTH 刺激測試或低劑量地塞米松(Dexamethasone)壓抑測試。
- 若證實犬隻罹患庫欣氏綜合徵，獸醫會著手找尋病源（即腦下垂或腎上腺瘤），這有助推斷病況及治療至見效的所需時間。
- 找尋病源的方法有幾種，其一是高劑量地塞米松(Dexamethasone)壓抑測試，另外的方法是進行腦部磁力共振及腹部 X 光及超聲波顯影。

治療

- 庫欣氏綜合徵可導致高血壓，血塊形成，經常性的尿道感染，糖尿及肌肉虛弱，故獸醫一般建議治療。
- 藥物治療包括：
 - Mitotane: 為一種化療藥物，作用是殺死腎上腺皮質部份的細胞，籍以減少皮質醇的分泌。開始服用此藥的首七至十日需得到小心觀察，之後患者需留院半天再進行 ACTH 刺激測試及電解質測試。若腎上腺縮小到足夠程度，獸醫會將藥物的劑量降至每星期兩次。
 - Trilostane: 作用是抑壓皮質醇的製造。由於此藥並不會摧毀腎上腺皮質部份的細胞，故若停服藥物的話患者便會復發。但因服後腎上腺皮質部份仍然完整，所以此藥較 Mitotane 安全。然而小部份個案的患者對 Trilostane 的效果較不明顯，另外 Trilostane 亦較 Mitotane 昂貴。此藥須每天服用。
 - 庫欣氏綜合徵的藥物治療均有一定的副作用，飼主宜先向獸醫清楚了解情況。

這是一個複雜的病症,如有任何疑問請向你的獸醫查詢