

Canine Cognitive Dysfunction

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SUMMARY:

- 1) The early symptoms of Canine Cognitive Dysfunction (CCD) are identical to many other brain diseases. Without extensive testing to rule out other diseases we cannot be certain that your dog have CCD.
- 2) There is no cure for CCD. Treatment is aimed at slowing down the progression of the disease and minimizing symptoms.
- 3) Treatment involves both environmental enrichment and a combination of over the counter supplements and prescription medication. Not all medications work for all dogs, and there is often a period of trial and error before we find the exact right cocktail for a certain pet.

EXPLANATION

Canine Cognitive Dysfunction (CCD) is the dog equivalent of human dementia. It is fairly common in older pets, with some studies reporting as many as a third of 11 year old dogs showing at least one sign of CCD. It can be difficult to determine if your pet has CCD based on symptoms alone because similar symptoms occur in other neurologic diseases. Therefore, true diagnosis of CCD requires an MRI to look for other brain disease. On this MRI, if your pet has CCD we will often confirm brain atrophy (shrinking). Some people choose not to pursue advanced diagnostics such as an MRI because of factors like cost and the need for general anesthesia. It's important to update your veterinarian with any new symptoms, especially if they have not been definitively diagnosed (i.e. if they have not had an MRI).

Symptoms:

- 1) Learning and Memory Problems: Your pet may seem to no longer recognize familiar people, places or things. They may forget their training, including house training.
- 2) Changes in Activity: Some pets may be much more lethargic than usual. They may respond less to sounds and events that used to excite them. Conversely, some pets may show compulsive behaviors, like pacing, aimless wandering or barking with no purpose.
- 3) Alterations in Sleep/Wake Cycle: A significant portion of dogs with these conditions have trouble falling asleep at night and may sleep heavily during the day.

TREATMENT

Unfortunately there is no cure for CCD. The treatments are aimed at slowing progression and improving some symptoms.

Environmental Enrichment:

Just like the muscles in your body, your brain needs a workout to stay healthy. This is especially important in pets with CCD. Activities like training are a great way to keep your pet engaged- you can in fact teach an old dog new tricks! Playing with toys, exploring new environments and interacting with people are also great ways to keep your pet mentally stimulated.



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Medications:

There are both prescription and over the counter medications for CCD. It can take a month or so to notice improvement on medications, so patience is key. Not all medications work for every pet, so there is some trial and error involved in finding the right medication combination for your pet. Once a successful therapy regimen is found, we recommend that the pet stay on it life long.

Prescription:

1. Selegiline (Anipryl): This is an MAO-B inhibitor that increases the level of dopamine in the brain.
2. Hills B/D: This is a prescription diet that contains high levels of several antioxidants, which can be much more convenient than giving multiple different pills. These antioxidants degrade quickly, so if you feed this food, you should buy a small to medium size bag (only enough food to last a month) and tightly seal it after every meal.
3. Pentoxifylline: It is theorized that this medication improves blood flow to the brain and therefore cognitive activity is improved. This medication is most often used in patients not responsive to the other therapies.

Over the Counter Supplements:

We recommend that pets start on only one or two of these supplements at once. If you feel your pet is not responding or has room to improve you may add one additional supplement every 2 weeks. The most common side effect is GI upset. If your pet has vomiting or diarrhea, please stop the supplements and contact your veterinarians.

1. Denamarin: This is a supplement containing S-adenosylmethionine (SAME) and Silybin A+B which support antioxidant activity in the body. This is available at most veterinarians and through online vendors such as amazon.com. Please select the correct size for your dog's weight and give per instructions on the package. It is most effective when given on an empty stomach (1 hour before a meal or 2 hours after a meal).
2. Neutricks: Apoaequorin is a calcium binding protein that has shown to help improve cognitive function in some dogs. It can be purchased online. Please follow the instructions on the bottle.
3. Omega 3 fatty acids: There are several dog formulated versions of Omega 3 fatty acids available online such as Bayer Snip Tips or Ascenta Canine Omega 3. Please follow the instructions on the bottle. Dogs on Hills B/D do not need to take this supplement as it already provided in high levels in that food.
4. Vitamin C/Ascorbic Acid: Vitamin C is an antioxidant vitamin. You can obtain 500mg or 1000mg tablets online or at most pharmacies.
 - a. Dogs 10 pounds or less should take $\frac{1}{4}$ of a 500mg tablet twice a day.
 - b. Dogs 11-20 pounds should take $\frac{1}{2}$ of 500mg tablet twice a day.
 - c. Dogs 20-30 pounds should take $\frac{3}{4}$ of 500mg tablet twice a day
 - d. Dogs 30-40 pounds should take 1 of a 500mg tablet twice a day
 - e. Dogs 41-50 pounds should take 1 $\frac{1}{2}$ of a 500mg tablet twice a day
 - f. Dogs 50 pounds and over should take 1000mg twice a day.
5. Vitamin E: Vitamin E is available in 100iu, 200iu and 400iu sizes online
 - a. Dogs less than 15lbs: 200iu twice a day
 - b. Dogs 15 to 30 lbs: 400iu twice a day



- c. Dogs over 30 lbs: 600iu twice a day
6. L-carnitine: This is most readily found in 500mg and 1000mg capsule sizes, but 250mg may be found online through retailers like amazon.com. Dogs on Hills B/D do not need to take this supplement as it already provided in high levels in that food.
 - a. Dogs less than 10 pounds: 250mg capsule twice a day
 - b. Dogs 11 to 25 pounds: 500mg capsule twice a day.
 - c. Dogs 26 to 60 pounds: 1000mg capsule twice a day
 - d. Dogs greater than 60 pounds: 1000mg capsule three times a day.
7. Alpha-lipoic acid. This is available as a 100mg supplement online. The dose is 100mg once a day for most dogs. In very small dogs (less than 5lbs) give 50mg once a day. Dogs on Hills B/D do not need to take this supplement as it already provided in high levels in that food.
8. Melatonin: In patients who have trouble sleeping at night or those with obsessive pacing/barking behaviors, melatonin can be helpful. This medication should be given 30 minutes prior to bedtime.
 - a. Small dogs: Give 3mg 30 minutes prior to bedtime
 - b. Large dogs: Give 6mg 30 minutes prior to bedtime

MONITORING:

Please contact your veterinarian if your pet develops new symptoms or if existing symptoms seem to be getting worse. Symptoms of brain disease include:

- 1) Seizures
- 2) Change in personality
- 3) Difficulty staying awake
- 4) Difficulty sleeping
- 5) Difficulty walking
- 6) Dizziness
- 7) Circling
- 8) Blindness
- 9) Difficulty eating, drinking or swallowing

