

Cognitive Dysfunction Syndrome

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Definition and Clinical Features

Cognitive Dysfunction Syndrome (CDS) is a neurodegenerative condition of geriatric dogs and cats that is analogous to Alzheimer's Disease in humans. The cause is unknown. Main clinical features include sleeping during the day while being restless at night, decreased social interaction, disorientation or getting lost in familiar places, and anxiety. Other signs may include inattentiveness, inactivity, aimless wandering, loss of house training, difficulty navigating stairs or other obstacles, failure to recognize familiar people and animals, hearing loss, excessive vocalization.

Diagnosis

Diagnosis of CDS is based largely on history of behavioral changes noted by pet owners. Other reasons for these clinical signs, such as pain/discomfort, metabolic disorders, or other central nervous system disease (e.g. "stroke" or brain tumor), should be investigated and addressed. Ideally, full work-up includes a physical exam, screening blood work, and an MRI of the brain. In many cases MRI is not an option, so we manage these pets symptomatically.

Therapy

Unfortunately, CDS is a chronic, progressive condition, which means that it gradually gets worse over time. At this time, there is no known cure for CDS, but there are a few therapeutic options to slow progression and improve function.

1. Selegiline/I-deprenyl is a monoamine oxidase B inhibitor that is thought by some to reduce clinical signs by altering brain chemistry. Response in individual patients is highly variable, and it may take a few weeks to see improvement. Although subjectively pet owners report improvement in clinical signs, objective data in both dogs and humans suggest little impact on actual cognitive function. Its effects may actually be due to low-level hyperactivity. Selegiline is not considered an effective drug for human Alzheimer's.
2. GABA-ergic drugs such as gabapentin or pregabalin may help alleviate some behavioral changes by positively nervous system chemistry. They also have benefits as adjunctive pain medication.
3. Non-steroidal anti-inflammatory drugs (NSAIDs) such as Rimadyl and Metacam may help by decreasing the inflammatory pathologic changes associated with CDS.
4. Antioxidant supplementation may also help improve cognitive function and slow progression by curbing the main pathologic changes within the brain. Since individual antioxidants have a specific place in the metabolic pathways, we often combine them to maximize results. Since nutraceuticals are not regulated by the FDA, please consult us for brand recommendations.

When starting nutraceuticals, add one product at a time to be sure there aren't any undesirable reactions. Options include:

- Hill's bId - An all-in-one prescription diet supplemented with antioxidants, mitochondrial cofactors, and essential fatty acids.
 - S-adenosyl-methionine (SAME) - A well-studied antioxidant available in easy-to-dose tablets. Recommended brands include Denosyl and Novifit.
 - Omega-3 fatty acids have well-understood anti-inflammatory properties. Fish oil is the most bioavailable source for dogs and cats, but still must be given at high doses (about 1 1000-mg capsule per 8-10 pounds) to reach effective levels. Gradually work up to this dose over 1-2 weeks to avoid diarrhea, and trim calories elsewhere in the diet to avoid weight gain.
 - Neutricks (apoeaquorin) is a protein originally derived from jellyfish that was shown to improve cognitive function in a controlled study.
 - Cell Advance 880 and Senilife are canine products that contain multiple antioxidants and mitochondrial cofactors.
5. There are prescription diets available, such as Science Diet B/D diet, that are specifically formulated for dogs with CDS. These diets have been shown in clinical trials to improve brain function in dogs with CDS, especially when combined with other therapies.
 6. Environmental and behavioral enrichment, such as regular exercise, introduction of new toys, and daily training sessions, have been demonstrated to improve cognitive function and slow progression of CDS.
 7. Several complementary and herbal therapies have been suggested, but not objectively studied. Goals include reducing anxiety and normalizing the sleep/wake cycle. These therapies include melatonin, valerian root, dog-appeasing pheromone (DAP), ginkgo biloba, phosphatidylserine, etc.