CASE CHALLENGES: BEHAVIOR PHARMACOTHERAPY IN SENIOR CARE
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IZZY
Signalment: One year old FS Lab mix (23kg)
Presenting Complaint: Anxiety in new situations and on walks, destructive chewing, aggression to Italian greyhound in household
Medical History: Healthy dog
Behavioral History: In general owner describes that in every new situation (walks, car rides, Ritters. Petsmart, etc.) she will cry, whine, pace, bark with hair up on back and run behind owner when strangers come closer. Chews on objects in living room when owner is gone and this will occur once or twice a week. Usually just leaves tooth marks but doesn’t destroy objects. Mainly chews leather shoes or picture frames. Will break out of crate when left alone at home. Usually she ignores owner as they leave. Owner describes her as a chewer since they got her. There has not been an incident between Izzy and Italian greyhound in 6 months. One incident was over a rawhide and other two times were when Izzy was anxious over noises and strangers in backyard. Izzy was sent away to “doggie boot camp” when she was 6 months old. She lost 10# while there and kept trying to escape kennel while there. Owner has not been able to keep her crated since then.
Consultation: In clinic consult. Very anxious throughout appointment (whined, paced, tail tucked, lowered body posture, several yawns, scanning, vigilant, reactively barking to any noise at exam door, hiding under owner’s chair). Would take treats in room though took them hard. She just shut down when took out for walk when fitting gentle leader.
Diagnosis:
Behavioral Recommendations:
Medications dispensed:

FACTORS TO CONSIDER
-Medical work-up
-Current medical problems and other meds
-Side effects
-Owner (compliance, cost)
-Behavior modification and environmental management
-Behavioral diagnosis
  Compulsive disorder
  Destructive behavior
  Controlling stimuli for desensitization and number of stimuli (global fear)

Choosing a drug
Pharmacologic management of phobias essentially breaks down into acute management of panic attacks and chronic control during desensitization and counterconditioning. The amnesic effects of certain classes of drugs, benzodiazepines and barbiturates, makes them less suitable for chronic use when behavior modification is also being attempted. (Shull 91, Overall 92, Dodman 94) The seasonal nature of the most common noise phobias: thunderstorms, fireworks and gunshots, may also allow for control of panic attacks during a specified problem time. Desensitization and counterconditioning can then be accomplished off of medications during a subsequent “quiet” time of the year, typically late winter/early spring. This timing also corresponds to the veterinarian’s traditional slower time and is an
opportune time to work with owners and pets who are otherwise cooped up due to shorter daylight hours or colder weather.

Key considerations in the choice of an antipanic medication include:

- Establish a tentative diagnosis: a thorough history and physical exam coupled with satisfying appropriate diagnostic criteria is necessary to properly document a phobia and rule out other possible causes for the pet’s symptoms. Workups may be required to rule out contributing cardiac, neurologic, endocrine or other medical disorders.
- Sufficient duration of action: 8-10 hours is typically the minimum length based on working households. Missed medications or low blood levels of a short acting drug can result in relapsing panic attacks and are unacceptable, especially when behavior therapy is ongoing.
- Sufficient onset of action: not as critical as duration but many times the severity of the panic attacks requires almost immediate results to prevent self trauma, stabilize the family emotions and terminate any more large economic losses associated with escape behaviors, destruction, eliminations or ptyalism. Most clients are open to a one - three week trial if necessary and they are aware of potential outcomes.
- Acceptable side effects: any medication has potential side effects. Owner education, pharmacology knowledge and a thorough physical exam are the keys here. Factors including age, breed, results of metabolic screening and concomitant medical disorders or other drug interactions must be accounted for when establishing a chemotherapeutic plan.
- Wide safety margins: medication with wide safety margins are preferred since many are needed long term, dose adjustments are commonplace, and effective dosages have not been established by clinical trials.
- Establish a client-patient-doctor relationship: Communication will be necessary long term, is critical to ensure compliance and is necessary to allay personal concerns when prescribing off-label drugs, including some controlled drugs with abuse potential.
- Economic assessment: The costs of the drugs themselves may not be the top concern. Higher costing drugs that work or are more convenient and assist compliance are more cost efficient than inexpensive drugs that don't work, although expensive doesn't mean better. Diagnostic workup and follow up are typically much more of an expense. The economic cost of constant repairs or medical needs also usually outweigh the drug costs.

Several reviews of behavior pharmacologic agents used in companion animals are available in the literature and are a helpful beginning. However, for almost all the medications, the dosages reflect extrapolations from human dosing, experimental toxicity studies, or therapeutic trials in individual cases. The reviews are an excellent place to start to understand possible mechanisms of action and side effects but veterinary behavior pharmacotherapy is sorely lacking in peer reviewed, randomized, controlled clinical trials on naturally occurring, acquired fears and phobias. The use of a Physician’s Desk Reference in addition to the newer veterinary formularies, Plumb,2nd ed. 1995, is a prerequisite so a practitioner is at least aware of any drug’s therapeutic and toxic profile in non-simian primates (humans).

A primary concern in prescribing controlled drugs is the potential for abuse by owners or other family members.(Overall 92, Dodman 94) Caution is urged when prescribing controlled drugs in households with teenagers, especially when they share responsibility for a pet’s care. Veterinarians may need to be more diligent since a pet’s care may transiently be the responsibility of extended family, neighbors, groomers, trainers, or other pet care service providers.(Overall 97c) An up-to-date medical record including all communications with doctors and staff is critical especially in multi-doctor practices and when working with a behaviorist or referral center. Therapeutic drug monitoring allows for
assessing client compliance and ensuring patients actually receive their doses. This is not commonly done for BZs as is routine with phenobarbital. Warning signs that suggest the possibility of abuse include: (Garvey 93)

- claims of lost or stolen prescriptions. Even the first time this occurs should raise some question marks. Give only 2-4 weeks of medication with limited or no refills initially.
- the need to have prescriptions filled ahead of time. Conscientious owners do not want to risk future panic attacks in their pets but assess their urgency when needed several weeks in advance.
- self-administered escalating doses. While initial doses are often low and are increased while side effects are monitored, rapid or regular escalating dose decisions on the part of an owner should prompt concerns.
- evidence the owner has sought medication from another practitioner. Keep the medical record current with any client communications including all doctors in the practice and referral communications from behaviorists or specialty veterinary referral centers.
- signs of intoxication. Whether drug or alcohol related, any signs of owner intoxication should be a contraindication to use of any medications with abuse potential, especially BZs.
- information from a relative or friend suggesting abuse. While family members may participate in some of the follow up assessments, there is more potential for comment to general practitioners here. Listen to staff members who might share individual or community concerns about an owner.

FOSTER
Signalment: 7 year old MN German Shepherd (43 kg)
Presenting Complaint: fearful, destructive behavior during thunderstorms
Medical History: Lick granuloma right hind for several years. Has had intermittent diarrhea for past year. Usually responsive to fasting and bland diet for 24 hours. Damaged teeth due to destructive behavior.
Behavioral History: Destructive behavior started about 3 to 4 years ago over a July 4th weekend when there were fireworks and severe storms. He had torn through the cat door to get to the basement and tore up owner’s mattress. He has since destroyed over two dozen sets of bed sheets since that episode. Owner has tried several treatments. Was on Amitriptylline 50 mg BID and Clorazepate 30 mg BID PRN on day of storms. The amitriptylline didn’t help and the clorazepate didn’t last long enough. Keeping him in a crate in the basement and starting him on Melatonin seemed to help for awhile until a real bad storm occurred. He broke out of his crate, destroyed a mattress and tore apart the basement. Now owner uses Acepromazine, DAP Diffuser, Storm Defender Cape and melatonin as well as trying to get home on days storms are coming.
Diagnosis:
Behavioral Recommendations:
Medications dispensed:

PIIPPI
Signalment: 12 year old FS spaniel/terrier mixed breed (14 kg)
Presenting Complaint: Panting, pacing, urinary accidents.
Medical History: Acquired as a 3 month old puppy with fx humerus. Spayed at 4 months of age. Atopic dermatitis (otitis externa, perineum, interdigital, facial pruritus) since age 3 to dust mites. Focal demodex at age 6 resolved with topical therapy. Routine elevation of ALP when profiling. Borderline ACTH stims and LDDST in past but never treated for Cushings. Renal compromise past 3 months (unable
to fully concentrate urine). Recurrent bacterial cystitis (various organisms) attributed to chronic vulvar dermatitis. 3 months ago treated with 3 week course of Doxycycline for Staph cystitis. Pollakiuria resolved.

**Environmental History:** Only dog but foster care household. Current foster beagle is rambunctious, urine marking in house. Sleeps in parent bedroom unless UTI, carpet accidents. Foster dog is confined to crate at night.

**Behavioral History:** Thunderstorm phobias since 2-3 years of age, shaking, whining.

Improves with owner contact/petting. During past couple weeks, urinary accidents at night and during day. Nighttime panting and pacing has begun to interrupt owner sleep and dog is relegated to kid’s room or laundry room. Large volume puddles are in various rooms, including near doorways. When dog is observed to urinate, no straining is observed.

**Consultation/Exam:** Excited, nervous dog, vocalizes when separated from owner. Numerous lipomas and sebaceous adenomas. Perineal adenoma present. Thickened ear canals, perineum and anal sacculitis. Urine sediment quiet, SG 1.017. Culture: no growth.

**Diagnosis:**

**Behavioral Recommendations:**

**TREATMENT PLAN SUMMARIES**

**IZZY**

**Signalment:** One year old FS Lab mix (23kg)

**Presenting Complaint:** Anxiety in new situations and on walks, destructive chewing, aggression to Italian greyhound in household

**Diagnosis:** Generalized fear / anxiety. Destructive chewing. Possible separation anxiety. Re-directed/excitement induced aggression to Italian greyhound

**Behavioral Recommendations:**

- Daily walks on gentle leader
- Response substitution on walks
- Clicker training (settled down, bed)
- No punishment
- Command-response-reward protocol for 3 to 4 weeks
- Videotape Izzy when owner is gone
- X-pen
- Drag line on Gentle Leader when in the house

**Medications dispensed:** Fluoxetine 20mg q 24 hrs

**Doses:** Fluoxetine 1 to 2 mg/kg q 24 hrs or 1mg/kg q 12-24 hrs

**Side Effects:** loss of appetite, sedation and possibly increase anxiety

**FOSTER**

**Signalment:** 7 year old MN German Shepherd (43kg)

**Presenting Complaint:** fearful, destructive behavior during thunderstorms

**Diagnosis:** Thunderstorm and Noise (firework) Phobia, Possible compulsive disorder (lick granuloma)

**Behavioral Recommendations:**

- Drug desensitization
- Ignore Foster when he does act scared during the storms
- Counter-condition to thunder claps
- Work on a relaxed down in a safe place with clicker training.
Medications dispensed:
- L-thyroxine BID (bloodwork before starting on meds showed hypothyroidism)
- Clomipramine 50mg BID for 2 weeks and then 75 mg BID for 2 weeks then re-evaluate T-4, GI signs and response to storms on meds. Possibly go to 100mg BID.
- Clonazepam 4mg BID

**Doses:** Clomipramine 2-4 mg/kg BID  
**Side Effects:** Decreased appetite, vomiting, diarrhea (recommend give with food), sedation, urine retention, arrhythmias, lowering of seizure threshold. Caution with use when on thyroid supplement. Clomicalm label- Not recommend for dogs with aggression.

**Doses:** Clonazepam 0.1-1.0 mg/kg BID to TID  
**Side Effects:** sedation, ataxia, increased appetite, possibly increase anxiety, not recommended for use for aggression

**Doses**: Amitriptylline 2-4 mg/kg BID  
**Side Effects:** Same as Clomipramine., may be preferential with barking and/or urinary accidents?

**Doses:** Clorazepate: 0.55 – 2.2 mg/kg q 8-24 hrs  
**Side Effects:** Same as Clonazepam

**Doses:** Melatonin 1mg for dogs less than 5kg, 1.5 mg for dogs 5-12 kg, and 3-6mg for large dogs. Can be given q 8-24 hrs. Also can dose by 0.1mg/kg q 8-24 hrs  
**Side Effects:** In people recommend to use with caution if have epilepsy or are taking tranquilizers or benzodiazepines

**Doses:** Acepromazine – 1 – 3 mg/kg BID to TID. This is the oral dosing rate  
**Side Effects:** Sedation, ataxia, hypotension, hypothermia, sudden collapse, syncope. Terriers are typically resistant to many of the sedation effects. Caution in sight hounds, giant breeds, brachycephalic breeds. Caution in patients with renal impairment, young puppies or outdoor pets during harsh weather, weak, debilitated, cardiac or hypovolemic pets, pregnant animals and geriatric patients.  
**Comments:** Not recommended since not an anxiolytic

**PIPPi**  
**Signalment:** 12 year old FS spaniel/terrier mixbreed (14 kg)  
**Presenting Complaint:** Panting, pacing, urinary accidents.  
**Diagnosis:** Canine cognitive dysfunction, rule out Cushing’s Disease  
**Behavioral Recommendations:**  
- family discussion of foster vs resident dog  
- weekly diary of geriatric behavior concerns to assess progression  
- Hill’s Prescription B/D diet  
**Medications dispensed:**  
- Anipryl 15mg in the morning  
**Doses:** l-deprenyl 0.25-1 mg/kg in the morning  
**Side Effects:** avoid concurrent use with MAO inhibitors, SSRIs or TCAs.
CAT DRUG COMMENTS (Doses are PER CAT)

**Doses:** Amitriptyline 2.5 - 12.5 mg/ CAT q 24hrs

**Side Effects:** Anticholinergic (dry mouth, urinary/fecal retention), antihistaminic, sedation. Bitter taste, may take 3-4 weeks for effect. Cardiac arrhythmias in people.

**Doses:** Megesterol acetate 2.5 - 5 mg/ CAT q 24hrs x 2 weeks than taper to q 3-7 dys.

**Side Effects:** sedation, obesity, diabetes mellitus, blood dyscrasias, mammary hyperplasia and carcinoma, endometrial hyperplasia and pyometra.

**Doses:** Paroxetine 1.25 – 5 mg/ CAT q 24hrs.

**Side Effects:** Gastrointestinal signs (anorexia, nausea, diarrhea). Shorter half life than fluoxetine so typically doesn’t take full month to see effect.

**Doses:** Alprazolam 0.125-0.25 mg/ CAT q 12 hrs. Weekend alprazolam trial, maintain diary of interactions.

**Side Effects:** sedation, ataxia, muscle relaxation, increased appetite, excessive friendliness in cats, paradoxical excitation, interference with learning/memory, disinhibition of aggressive behavior, idiopathic hepatic necrosis from oral dosing (repeat hepatic screen by day 3-4.) Controlled drug cautions.

**Doses:** Feliway pheromone spray, twice daily on prominent marking posts. 

**Side Effects:** none

REFERENCES


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