Psychotropic Agents

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Psychotropic Drugs

O How do we choose one drug over another?

Plan

 Use a similar type of experimental method to that used in human psychiatry

 need to have a good knowledge of the drugs available

Understand

The agents that are available

how they work or their general actions

side effects

therapeutic effects

Reasons for knowing the pharmacology

 So that you know the probable effects of the medication

 helps to distinguish if one product isn't effective



Determine the animal's motivation

 characterise the signs that the medication will address

 identify a set of behavioural target signs These will act as indicators of the effectiveness of the pharmacological intervention

 diaries or video are an excellent tool

 need to know the time it takes for a drug to be effective The treatment goals.....include significant and persistent reduction of target symptoms with as few side effects as possible" (Brandwein, 1993)

Pheromones

- Feliway feline facial pheromone analogue
- DAP Dog Appeasing Pheromone
- more effective if there is an underlying anxiety

Pheromones



 Thought to work by stimulating olfactory receptors

 can be used as a spray on objects or through a diffuser

Uses

F3

- indoor urine spraying
- reduction of roaming from a new environment
- improved food intake in hospitalised cats

F4

- reduces aggression in response to handling by strange people
- reduce stress in a shelter



DAP uses



- Settling a new puppy in
- reducing fear
- helps to treat separation anxiety
- reduces travel sickness

Anxiolytics

- Benzodiazepines
- azapirones
- barbituates
- antihistamines

Benzodiazepines

 Activate benzodiazepine receptors in the CNS to facilitate GABA transmission

GABA is an inhibitory neurotransmitter

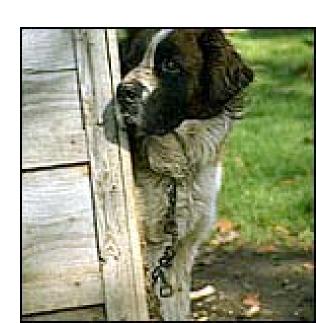
Names

- Diazepam
- clorazepate
- alprazolam
- oxazepam
- lorazepam
- temazepam

Benzodiazepines

- Uses:
 - Fears, phobias and anxiety dogs
 - urine spraying cats
- rapid onset of action

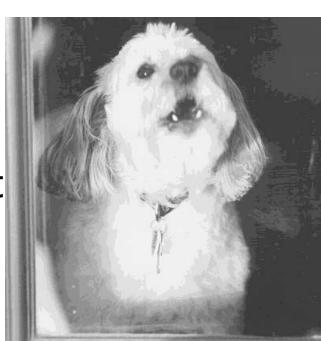
rapidly metabolised



Side Effects

Soon after administration

- sedation
- ataxia
- muscle relaxation
- increased appetite
- paradoxical excitement
- memory deficits



Side Effects

 Over the first few days of treatment may develop tolerance to the sedation, ataxia and muscle relaxation

 caution in fearful animals since aggressive behaviour may be disinhibited

After Chronic Use

 Withdraw slowly to avoid discontinuation syndrome (recurrence of initial signs, nervousness and seizures)

 taper the dose by 25% per week until stopped Very well tolerated in dogs

 in cats idiopathic hepatic necrosis can occur within 7 days of starting treatment

 screen for liver function before start therapy and then one week later

 remember that BZs are subject to human abuse

Diazepam

 Effective in 55-75 % of cases of urine spraying

 possibly greater efficacy in males than females

 when medication is stopped relapse is common Hepatic necrosis can occur

 could be used in sporadic events in dogs

Alprazolam

- High potency BZ
- more rapid onset of action than diazepam
- fearfulness and phobias dogs

individual dosing important

Azapirones

 Antianxiety drug with serotonergic, noradrenergic and dopaminergic effects

 buspirone - partial seretonin-1alpha agonist

 used for generalised anxiety and to modulate states of high arousal includes some feline spraying Improvement in 55% of cats

 50% relapse rate following cessation of treatment

 may reduce intercat aggression when given to the more fearful individual

Buspirone

- Slow onset of action 1-3 weeks
- side effects benign GI signs, irritability, changes in social relationships including mild aggression in multicat households
- can have paradoxical increase in anxiety
- non-sedating

Antidepressants

Tricyclic antidepressants

selective serotonin reuptake inhibitors

monoamine oxidase inhibitors

Tricyclic Antidepressants

 Block the uptake of serotonin (5HT) and noradrenaline

- Examples:
 - amitriptyline
 - imipramine
 - clomipramine

Uses

- In dogs
 - aggression
 - urine marking
 - repetitive behaviours
 - anxiety states

Uses



In cats

- certain forms of aggression
- urine spraying
- excessive grooming
- anxiety states
- excessive vocalisation

 May take 2-4 weeks before effect is seen

 commonly produce side effects due to their activity at muscarinic and antihistaminic sites

 mild sedation - common especially in the first week

Side Effects

- Anticholinergic effects
 - dry mouth
 - urinary/ faecal retention

- antihistaminic effects
- cardiac conduction disturbances
- rarely may cause agranulocytosis
- may lower seizure threshold

TCAs

Bitter - may cause hypersalivation

 competitively metabolised by phenothiazines metabolism stimulated by the concurrent use of barbituates

 Cimetidine may inhibit antidepressant metabolism

Amitriptyline

 Widely used to help behavioural therapy programmes

enhances behavioural calming

 can be used alone or with pheromones

Amitriptyline



o cats -

- urine spraying and inappropriate urination secondary to idiopathic cystitis
- psychogenic alopecia
- dogs
 - anxiety disorders
 - certain forms of aggression
 - repetitive self trauma

Clomipramine

- Predominantly affects serotonin
- obsessive-compulsive disorder humans
- compulsive disorders dogs
- anxiety disorders

Clomipramine

- Cats
 - compulsive disorders
 - spraying



Selective Serotonin Reuptake Inhibitors

- Block the reuptake of serotonin
 - fluoxetine
 - paroxetine
 - sertraline
- can be 3-4 weeks to onset
- may need 8 weeks or more to see maximal effects on compulsive disorders

SSRIs

- Dogs
 - anxiety states
 - compulsive disorders
 - status-related aggression

- Cats
 - anxiety disorders
 - urine spraying



SSRIs

 Monitor cat for water and food consumption, weight and elimination habits

Side Effects

- Gastrointestinal irritation
 - anorexia, inappetance, nausea or diarrhoea
- sedation
- insomnia
- irritability

 nearly no cardiovascular disturbances

Fluoxetine

- Widely used in humans
- 3-4 week latency to effect
- Dogs -
 - has been used for dominance aggression
 - compulsive disorders
- Cats
 - urine spraying
 - compulsive disorders
 - anxiety states and aggression



Monoamine Oxidase Inhibitors

- Irreversible inhibitor of monoamine oxidase (an enzyme that catabolises noradrenaline, adrenaline, dopamine, tyramine and serotonin)
- Selegiline

Selegiline



- Canine cognitive dysfunction
- Feline cognitive dysfunction
- can have SERIOUS side effects when combined with some other drugs that affect neurotransmitter concentrations

Side Effects

 CNS toxicity and serotonin syndrome can occur if combined with SSRIs, non-specific MAOs or TCAs

 potentially fatal syndrome increased BP, altered mental status, restlessness or hyperthermia, tremor

Side Effects

 Contraindicated - don't use with alpha 2 agonists, phenothiazines and opiate analgesics

do not use in pregnant or lactating

animals



Antipsycotics

- Block dopamine receptors (among other things!)
 - acepromazine
 - haloperidol
 - chlorpromazine

Acepromazine

Sedative neuroleptic

- has been used to non-specifically manage behaviour problems such as
 - noise phobia
 - aggression

 Reduces the animal's awareness of environmental stimuli

produces sedation

 other agents are now preferred since they are more specific Variable response to treatment and unacceptable side effects

 may provoke seizures, sedation, anticholinergic effects and extrapyramidal symptoms

Progestogens

 Widely used to suppress malehormone dependant behaviours and may have tranquillizing effects

non-specific in effect

lots of side effects

 Not recommended as first line of treatment

Side Effects

- Side Effects include:
- hypercalcaemia
- polyphagia, polydipsia, polyuria decreased packed cell volume mammary nodules pyometra, diabetes mellitus, increased insulin levels, bone marrow suppression, increased growth hormone.

Xanthine Derivatives

 Propentofylline - reduces free radical generation and influences neuronal firing

 improves cerebral blood flow vasodilatation

increased cardiac output and RBC flexibility

 Treats a number of age related changes in dog behaviour

Management

Followups are needed

may need to make adjustments

