

## **Behaviour Altering Drugs**

**Psychopharmacology**

### **Fred**

- 3 month old male kitten
- runs round house just after dark
- very excited
- attacks owners

### **Fred**

- Cat's (or owner's) problems?
- Does he need drugs?
- What do you want the drugs to do?
- What do you want the drugs not to do?
- Which drug?

### **Fred**

- Cat's (or owner's) problems?
- Is Fred's behaviour:
  - normal?
  - adaptive?
  - abnormal?
- Why is he doing it?

## **Fred**

- **Cat's (or owner's) problems?**
- **Does it need drugs?**
  - training?
  - drugs?
  - combination?

## **Fred**

- **Cat's (or owner's) problems?**
- **Does it need drugs?**
- **What do you want the drugs to do?**
  - reduce unwanted signs
- **What do you want the drugs not to do?**
  - not make the problem worse
  - not introduce a new problem

## **Fred**

- **Which drug?**

## **unwanted behaviour**

- **cats**
  - spraying
  - scratching furniture
- **dogs**
  - aggression
  - barking
  - chewing / digging
  - fear

**Why do animals behave in  
the way that they do?**

**unwanted behaviour**


- boredom
- anxiety / fear
- depression
- (senility)

**drugs or training?  
ie  
pharmacotherapy or  
psychotherapy**

**unwanted behaviour**

- boredom
  - distraction
- anxiety / fear
  - anxiolytics ± TCAs, pheromones
- (depression
  - antidepressants)
- (senility
  - stimulants)

## **anxiety**

- normal / useful
  - attention seeking
  - interference with normal activities
  - phobic anxiety
  - panic attacks
- 

## **anxiety**

- subjective in people
- interpretation of animal behaviour??
- effects of drugs?

## **conflict situations**

- mixing groups of animals
- new / potential danger
- objective danger
- animal / owner interaction

## **measuring anxiety**

- animals
  - behaviour
  - response to drugs
- people
  - anxiety scales
  - autonomic responses
  - response to drugs

## **anxiety related behaviour**

- **cats**
  - spraying
- **dogs**
  - aggression
  - barking
  - chewing / digging
  - fear

## **anxiolytic drugs**

- **benzodiazepines**
  - diazepam
- **5HT<sub>1A</sub> agonists**
  - buspirone
- **pheromones**
- **(barbiturates)**
- **( $\beta$  blockers)**
- **(chloral hydrate, etc)**
- **antidepressants**

## **benzodiazepines**

- **safe**
  - rarely liver failure in cats
- **reduce effects of training**
  - beware working dogs!
- **interfere with learning?**
  - block memory
- **withdrawal syndrome / dependence?**
- **effects increase with age – senility?**
- **tolerance?**

## **buspirone**

- **5HT<sub>1A</sub> agonist**
- **mechanism unknown**
- **effects take weeks**
- **side effects restlessness**

## pheromones

- feline facial pheromone
- dog appeasing pheromone
- both reduce stress-related signs

## antidepressants

- depression induces anxiety
- depression induced by stress?
  - 75% of cases in people

## depression in people

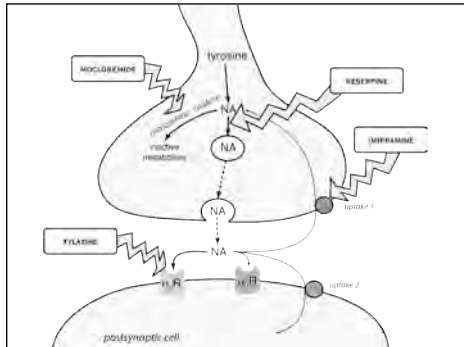
- unipolar
  - reactive
  - endogenous
- bipolar

## depression in animals

- ???

## depression

- **monoamine theory**
  - depression is caused by a functional deficit of monoamines
  - supported by known effects of some drugs
  - much contradictory evidence
  - manipulation of monoamines works in people



## antidepressant drugs

- **tricyclic antidepressants**
  - amitriptyline, imipramine, clomipramine
- **selective serotonin reuptake inhibitors**
  - fluoxetine, paroxetine, sertraline
- **monoamine oxidase inhibitors**
  - phenelzine, tranylcypromine, moclobemide (A), selegiline (B)
- **atypical antidepressants**
  - maprotiline, mianserin

## side effects

- **tricyclic antidepressants**
  - sedation, anticholinergic effects, arrhythmias, seizures, memory?
- **selective serotonin reuptake inhibitors**
  - nausea, diarrhoea, insomnia
- **monoamine oxidase inhibitors**
  - sedation, insomnia, weight gain, cheese reactions, pethidine reactions?
- **atypical antidepressants**
  - sedation, hypotension, seizures

## antidepressants

- take 2 – 4 weeks to work in people
  - spontaneous recovery
  - lack of efficacy
  - huge placebo effect
- dogs?
- cats???
- many active metabolites in people

## depression related behaviour?

- cats
  - spraying
  - scratching furniture
- dogs
  - aggression
  - barking
  - chewing / digging
  - fear

## sex

- progestagens
  - antiandrogen effect
  - anxiolytic effect?
  - delmadinone
  - megestrol
  - medroxyprogesterone

## sex related behaviour?

- cats
  - spraying
- dogs
  - aggression
  - barking
  - chewing / digging
  - fear



## **stimulants**

- **indications?**
  - senility
- **problems**
  - drugs of abuse in people

## **stimulants**

- **amphetamines**
- **amphetamine like drugs**
  - methylphenidate
- **methylxanthines**
  - caffeine etc
  - oxpentifylline

## **stereotypies**

- **inappropriate repetitive behaviour**
  - boredom?
    - provide distraction
  - inappropriate stimulation of reward pathway?
    - opioid antagonists
    - dopamine antagonists

## **Fred**

- **3 month old male kitten**
- **runs round house just after dark**
- **very excited**
- **attacks owners**

## Fred

- **Does he need drugs?**
  - dubious
- **What can you reasonably expect drugs to do?**
  - reduced activity / sedation
- **Which drug?**
  - benzodiazepine?
  - antidepressant?
  - pheromone?

## behaviour altering drugs

- the cause of altered behaviour should be addressed – the problem may be the owner!
- psychotherapy is usually better than drugs
- drugs seem to work best in combination with psychotherapy
- benzodiazepines and antidepressants are used for anxiety related problems
- beware side effects!!!