

Drugs and the Bladder

common problems

- cystitis
- urolithiasis
- incontinence

cystitis

- commoner in females
- usually *E. coli*
- broad spectrum antibacterial
 - penicillins
 - eg, amoxicillin
 - urinary antiseptic

urolithiasis

- male cats
- dogs
- castrated calves
- castrated lambs

urolithiasis

- surgery & antibacterials
- dietary control
- drugs / medicated food to control pH
- diuretics??
- analgesics!

urinary acidifiers

- ammonium chloride
- sodium acid phosphate
 - sometimes used with
 - penicillin
 - tetracyclines

urinary alkalinisers

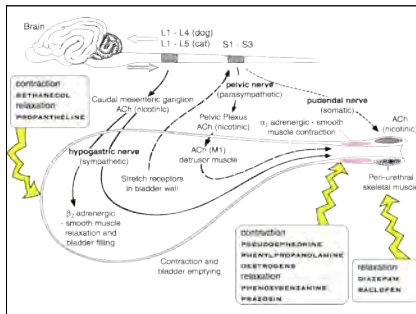
- sodium bicarbonate
- sodium acid citrate
 - sometimes used with
 - potentiated sulphonamides
 - erythromycin

incontinence

- detrusor instability
 - cystitis
- sphincter atony
 - spayed bitches
- detrusor paralysis
 - road accidents - spinal injury

incontinence

- **dribblers**
 - sphincter atony
 - overfull bladder
- **strainers**
 - cystitis
 - neoplasia
 - detrusor instability
 - sphincter incompetence
 - urolithiasis



dribblers

- **sphincter atony**
 - oestrogens & $\alpha 1$ agonists
- **overfull bladder**
 - bethanecol
- **ectopic ureters**
 - surgery

spayed bitches

- **oestrogens**
 - oestradiol inj
 - oestrogen tablets
 - ethinyloestradiol
 - oestriol
 - oestrogen conjugates
 - (stilboestrol)

spayed bitches

- α 1 agonists
 - phenylpropanolamine
 - pseudoephedrine
 - ephedrine
 - P!!!

oestrogen side effects

- bone marrow depression
- endometrial hyperplasia
- abortion if pregnant
- behavioural changes
- mammary tumours

α 1 adrenergic side effects

- vasoconstriction
- hyperexcitability
- anorexia
- abortion

strainers

- cystitis
- neoplasia
- detrusor instability
 - propantheline
- excess sphincter tone
 - phenoxybenzamine
 - diazepam
- urolithiasis

anti-inflammatory drugs

- corticosteroids
- NSAIDs

7 yr old male Jack Russel

- frequent urination
- straining
- sometimes blood in urine

problems

- prostatic hyperplasia
- infection?

treatment

- oestrogens
- anti-androgens
- castration
- antibiotics?

8yr old male cat

- hit by car
- fractured pelvis
- not urinating
- large bladder

problems

- pelvic nerve damage
- detrusor atony

treatment

- muscarinic agonist
 - bethanecol
- (OP)

bladder

- antibiotics (usually broad spectrum penicillins) used for cystitis ± urolithiasis
- oestrogens + α_1 agonists used for incontinence in spayed bitches
- bladder pH is sometimes manipulated to increase secretion of drugs or to dissolve uroliths
- drugs do not always work

The Uterus

relaxants

- clenbuterol
 - β_2 agonist
- (nifedipine)
 - calcium channel blocker
- (glycerol trinitrate)
 - converted to nitric oxide

relaxants

- used to delay parturition
- used in obstetrics
- abused as growth promoter

contraction

- oxytocin
 - mainly large animals at parturition
- (prostaglandin F₂ α)
 - bitches
 - care with handling
 - women
 - asthmatics

uterus

- **clenbuterol is used to relax the uterus to postpone calving by about 6 - 12 hours**
- **oxytocin is used to promote uterine involution after parturition and to promote parturition in sows with uterine atony**