



Nocturia and Nocturnal LUTS

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Terminology

- Nocturia
 - The complaint that the individual has to wake at night one or more times to void¹.
- Nocturnal Polyuria
 - The excessive production of urine at night
 - Defined as >33% of the 24 hour total ²
- Nocturnal Enuresis
 - Urinary incontinence during sleep¹



1. Neurourol Urodyn, 2002. 21(2): p. 167-78
2. Gen Pharmacol 1995 26: 1203–1209





Nocturia

- Very common
- Bothersome
 - Most people will tolerate 1 episode
- Bothersome to the partner





Rough numbers...

- Normal Bladder capacity is ~500ml
- 24 urine output ~1500ml
- 1/3 at night – 500ml
- So “normal” people should manage 8 hours sleep without voiding





So, if you have nocturia, either...

- You're producing too much urine
- Your bladder isn't holding on well
- Or your bladder isn't empty when you fall asleep





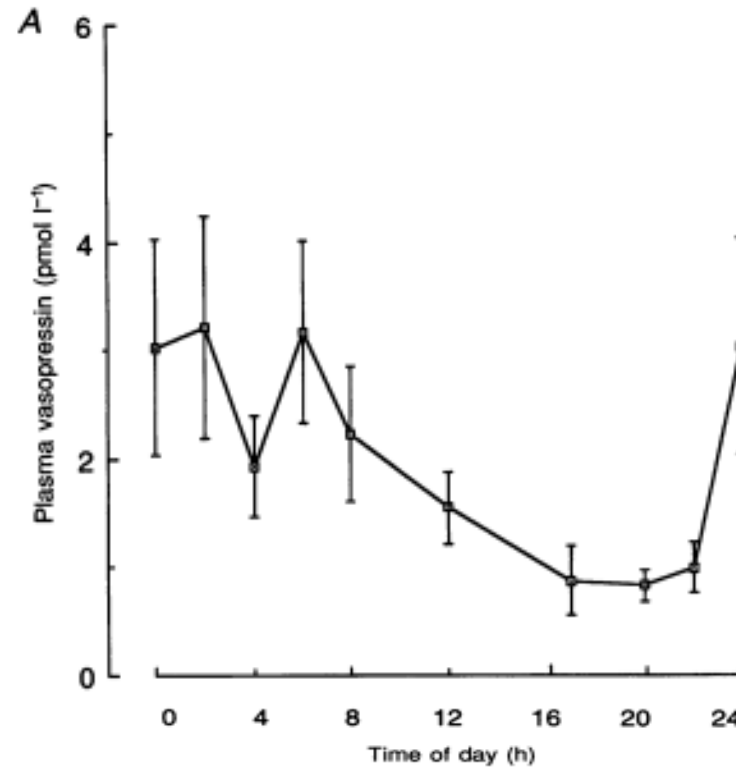
Physiology

- Urine output is largely dependent on ADH secretion
- ADH is secreted in response to increased osmolality
- Increased aquaporins in the collecting duct
- Water is reabsorbed
- Osmolality falls
- Urine output falls



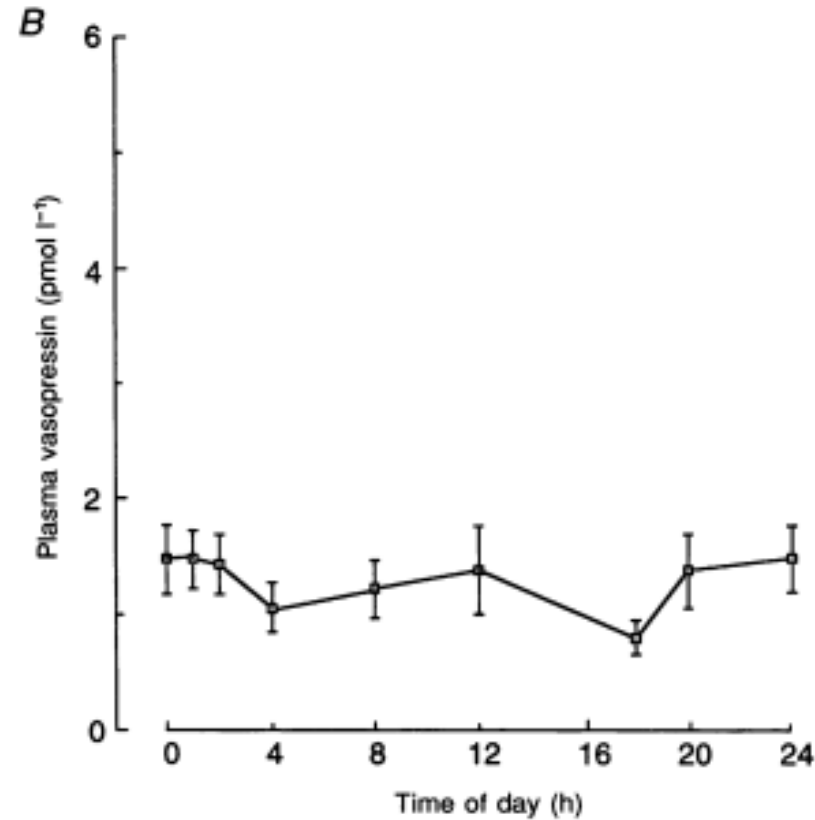


ADH also exhibits diurnal variation





This is lost in ageing





Old kidneys aren't as good

- Reduction in urine concentrating ability
 - 20% reduction in maximal urine osmolality
 - 50% decrease in the ability to conserve solute
 - 100% increase in minimal urine flow rate
- So less urine produced in the day





Therefore

- Older people are prone to nocturnal polyuria and nocturia
- As a consequence of normal ageing





Also consider

- Peripheral oedema
 - Fluid is reabsorbed and filtered when lying flat
 - CCF
 - Amlodipine
 - NSAIDs
- Hyperglycaemia
- Fluid intake





Bladder not working?

- OAB
 - Urgency, with or without urgency incontinence, usually with frequency and nocturia...
- Some people's OAB symptoms are worse at night





Impaired bladder emptying

- PVR rises with ageing
- No agreed cut-off of normal
- If you go to sleep with 400ml in a 500ml bladder, you're waking up
 - BPO
 - Constipation
 - Drugs
 - Diabetes
 - Neurological disease





Assessing nocturnal LUTS

- Assess the daytime LUTS
- Gauge urine volumes
 - Bladder diary
 - “When you pee at night, is it worth it?”
- PVR
- Sedative meds turn nocturia into enuresis





Treatment of nocturia

- Treat the underlying cause
 - Evening fluids
 - OAB – conservative and/or pharmacological
 - Stop the amlodipine
 - Treat the CCF
 - Lower the night-time glucose





Idiopathic true nocturnal polyuria

- Confirm with a bladder diary
- >33% of the 24 hour output at night
 - Include the first void of the day





Furosemide

- Give 20 – 40mg 6-8 hours before bed
- Increases urine output
- Go to bed slightly dry
- Remember why it used to be called “Lasix”





Desmopressin

- Synthetic ADH
- Binds to V2 receptors and increases aquaporin release
- 25µg qhs po for women
- 50µg qhs po for men
- Can cause hyponatraemia
 - Check Na⁺ pre-treatment and day 3
 - Counsel on symptoms





Containment

- Restricted mobility
- Failure of treatment
- Nighttime pads
- Scheduled voiding
 - Set an alarm
 - Bell and Pad
- Body worn devices
 - Condom Catheter
- Bedside commode
- Handheld Urinal
- Lighting

