



# Nocturia

## It's a medical condition and a disorder symptom

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Nocturia, or excessive urine production at night, is a medical condition caused by a deficiency of antidiuretic hormone. It's not to be confused with nocturnal enuresis, which is involuntary voiding during sleep. A relevant history and physical examination is required to identify the underlying disorder, which may be pathologic or behavioural. A voiding diary recorded over 48-72 hours will identify as many as 70% of the patients whose nocturnal output exceeds 20-35% of their 24-hour urine production. Desmopressin is the only approved oral treatment for nocturia, but serum sodium monitoring for the resultant hyponatremia is mandatory. Fluid intake adjustment, early evening diuretic therapy and afternoon rest periods with feet elevated may also reduce nocturia episodes. The benefits include a reduction of daytime sleepiness, tiredness, mood changes and poor concentration.

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### Impact of nocturia

- sleep disruption produces daytime sleepiness, tiredness, mood changes, poor concentration and performance deficiency
- increased sick leave — up to 75 days per year in women aged 40-64 years who void  $\geq$  3 times per night
- greater risk of personal injury due to falls, with up to 10% of hip fractures in the elderly due to nocturia

### General causes

#### Nocturnal polyuria

- overproduction of urine at night: > 20% of 24-hour urine production in young people, > 20-30% in middle-aged adults, > 33% in the elderly
- comprises up to 70% of nocturia cases

#### Behavioural factors

- caffeine and alcohol consumption
- fluid intake > 2,800 ml/24 hours
- excessive fluid intake in the evening

#### Pathologic conditions

- cardiovascular disease, e.g. congestive heart failure
- renal disease
- neurologic disorders, e.g. Parkinson's disease
- untreated diabetes mellitus or insipidus
- lower urinary tract dysfunction, e.g. benign prostatic hypertrophy
- bladder storage problems, e.g. overactive bladder
- primary sleep disorders, e.g. sleep apnea

### Workup

- relevant history for cause
- physical examination aimed at identifying etiology
- 48-72 hour frequency-volume chart for fluid intake and urine output

### Prevalence

#### Children and adolescents, ages 7-15

- up to 35% experience occasional nocturia
- 4% have regular episodes

#### Adults

- ages 16-49 years: about 14% of women and 32% of men
- ages 50-59: 59% of women and 67% of men
- aged 60-80: about 64% of women and 70% of men
- over age 80: 72% of women and 91% of men

### Diagnostic tests

#### Minimum assessment

- midstream urine for routine and microscopy culture and sensitivity
- electrolytes and creatinine
- 24-hour urine collection for protein, creatinine, sodium and potassium

#### Where appropriate, based on history and physical exam

- blood sugar, glucose tolerance test
- urodynamics for overactive bladder
- cystoscopy for intracystic pathology
- sleep disorder assessment
- other tests, as defined by assessment

### Treatment

#### Lifestyle changes

- limit caffeine and alcohol
- curb fluid intake before bedtime
- reduce excessive fluid intake
- afternoon rest with feet elevated, for elderly with edema

#### Medication

- desmopressin intranasal spray at two squirts nightly
- desmopressin oral tablets at 0.1, 0.2 or 0.4 mg nightly
- diuretics timed for early evening, not late afternoon

#### Medical conditions

- treat appropriately

### Desmopressin

#### Side effects

- headache 5-7%
- dizziness 5%
- increased number of daytime voids 3%
- peripheral edema 3%
- hyponatremia 4.5%

#### Monitoring

- serum sodium/electrolytes days 3 and 7, then every three months if not at risk for hyponatremia, or days 3 and 7, then monthly if at risk

#### Contraindications

- age greater than 65 years old, relative
- liver disease
- hyponatremia with serum sodium < 130 mmol/L
- salt-losing nephropathies
- chronic renal insufficiency
- bleeding conditions
- eating disorders
- adrenocortical insufficiency
- congestive heart failure
- systemic infections

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