



### Announcement

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# The Geriatric Perspective on Constipation

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Constipation is common in our daily clinical practice. Many older persons are taking laxatives regularly in long term. Assessment of constipation requires an appreciation of the interplay among different disease processes, iatrogenesis and environmental factors.

Our colon receives around 1–1.5 litres of fluid, salt, fibre and other residues each day. Approximately 90% of water and salt is reabsorbed and 100 g of stool, which consists of 70 mL of water and 30 g of solid material, is produced. The degree of desiccation of bowel content is related to the transit time along the colon. Colonic transit does not appear to change with ageing.

## Definition of constipation

Different people define constipation differently. 99% of the population has between 3 bowel movements per day and 3 bowel movements per week.<sup>1</sup> Many older persons insist on a daily bowel movement for them to be healthy, stressing on the traditional Chinese concept that toxins inside the body are required to be cleared. Such belief will result in the overuse of laxatives.



The American Gastroenterological Association (AGA) Medical Position statement<sup>2</sup> had highlighted the symptoms of constipation from patients' perspectives (in decreasing order of importance) which include straining, stool that is excessively hard, unproductive urge, infrequency and feeling of incomplete evacuation. On the other hand, the **Rome III diagnostic criteria**<sup>3</sup> for functional constipation has given a better idea of what constipation is, at least for epidemiological purposes. Clinicians have to explain to patients that a healthy bowel does not depend solely on the frequency of bowel movements. A change in bowel habits appears to be more important in clinical setting than the number of daily bowel movements.

Table 1. Rome III criteria\* for functional constipation<sup>3</sup>

- Must include 2 or more of the following:
  - Straining during at least 25% of defaecations
  - Lumpy or hard stools in at least 25% of defaecations
  - Sensation of incomplete evacuation for at least 25% of defaecations
  - Sensation of anorectal obstruction/blockage for at least 25% of defaecations
  - Manual manoeuvres to facilitate at least 25% of defaecations (eg, digital evacuation, support of the pelvic floor)
  - Fewer than 3 defaecations per week
- Loose stools are not present without the use of laxatives
- Insufficient criteria for irritable bowel syndrome (IBS)

\*Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

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## Epidemiology of constipation in older persons

Prevalence of constipation in general population worldwide ranges from 0.7%–79%.<sup>4</sup> Studies on age-increased prevalence of constipation have yielded markedly inconsistent results. However, it is generally believed that physician visits for constipation are significantly more common among elderly people<sup>5</sup> and laxatives are used more commonly by elderly women.<sup>6</sup>

In Hong Kong, prevalence of constipation as defined by the Rome III criteria<sup>7</sup> was reported to be 14.3%, with a female to male ratio of 1.3. The prevalence did not differ between younger and older age groups. However, a 2003/2004 Hong Kong population survey on various health conditions found an increased prevalence of acute constipation in older age groups (14.1% in those aged 65–74 years and 22.8% in those aged 75 years and older) than in younger age groups (8.8–11.5%).<sup>8</sup>

## Pathophysiology of constipation

Traditional classification of **functional** constipation into slow transit, dyssynergic and normal transit types has been suggested to be a gross over-simplification as there is significant overlap in symptomatology and pathophysiological characteristics.

In older persons, a meticulous look for **secondary causes** of constipation is of high clinical importance and relevance. Many medical conditions and medications are associated with constipation (Table 2).<sup>9</sup> These conditions are often more prevalent in the elderly population. On the other hand, the cause of constipation in an elderly person is usually multi-factorial, with interplay among various disease processes and iatrogenesis.

The possibility of **drug induced bowel disorder** should always be considered. Drug-related constipation is extremely common. Notably, a drug that causes constipation in one person can cause diarrhoea in another. Clinicians often need to have high index of suspicion in order to make a correct and timely diagnosis of iatrogenesis.

Table 2. Common medical conditions associated with constipation<sup>9</sup>

<b>Mechanical obstruction</b>	<b>Metabolic conditions</b>	<b>Drugs</b>
* Colorectal cancer	* Diabetes mellitus	* Opiates
* External compression from malignant lesions	* Hypothyroidism	* Anticholinergic agents
* Strictures	* Hypercalcaemia	* Calcium channel blockers
* Large rectocele	* Hypocalcaemia	* Tricyclic antidepressants
* Megacolon	* Hypokalaemia	* Antipsychotics
* Post-surgical abnormality	* Hypomagnesaemia	* Calcium supplements
	* Uraemia	* Iron supplements
<b>Painful anal conditions</b>	* Heavy-metal poisoning	* Calcium containing antacids
	<b>Neurological conditions</b>	* Antidiarrheal agents
* Anal fissure	* Parkinson's disease	<b>Miscellaneous</b>
* Prolapsed piles	* Spinal cord injury or tumour	* Depression
* Perianal abscess	* Cerebrovascular disease	* Cognitive impairment
<b>Connective tissue disorder</b>	* Multiple sclerosis	* Immobility
* Scleroderma	* Autonomic neuropathy	
* Amyloidosis		

## Clinical assessment of constipation

The first question to be answered following clinical assessment is whether the patient is truly constipated or not. A stool diary, paying attention to the frequency of bowel movements and stool form, is preferable; if necessary, the Rome criteria can be referred to. For functionally constipated individuals, stool consistency, which can be assessed and graded by the Bristol Stool Form scale<sup>10</sup>, correlates with colonic transit. Sensation of incomplete evacuation and anorectal blockage together with the need to use manual manoeuvres to facilitate defaecation may suggest dyssynergic defaecation. Abdominal pain relieved by bowel motion is a key diagnostic criterion of IBS. Dietary and lifestyle factors should be assessed. Since medical diseases as well as iatrogenesis are more prevalent in the elders, the differential diagnosis listed in Table 2 should be considered alongside the signs and symptoms of the patient's condition. Clinicians should be able to identify 'red flag' signs and symptoms for underlying sinister causes for the constipation. Recommendations on gastroenterologist referral (Table 4)<sup>11</sup> for patients with alarming clinical features are available for reference. Medication history, in particular laxative usage, should be reviewed. Rectal examination should focus on detecting perineal and perianal pathology and assessing sphincter tone and the presence of faecal impaction. Proctoscopy examination revealing blood descending from above the anal canal is an important sign for locating pathology proximal to the anal canal, instead of attributing rectal bleeding to haemorrhoids. Laboratory investigations should be directed by clinical findings. Complete blood count, renal function and electrolytes, calcium, glucose, thyroid function, faecal occult blood and colonoscopy may be indicated in specific clinical settings. However, the American College of Gastroenterology has recommended against a routine use of these investigations in every constipated

individual.<sup>12</sup> Sophisticated investigations such as balloon expulsion test, colonic transit study, anorectal manometry and defecography is available in tertiary gastroenterological referral centres. Finally, the psychosocial well-being of the constipated individual should also be assessed and counselling may be needed.

*Table 4. Indications for gastroenterology referral of constipated individuals<sup>11</sup>*

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Recent onset of constipation associated with
* Weight loss
* Anemia
* Abdominal pain
* Blood per rectum
* Haem positive stool or family history of colonic cancer
Chronic constipation in conjunction with
* Change in stool form or frequency
* Unintentional weight loss
* Anaemia
* Abdominal pain
Failure to alleviate constipation despite compliance with high fibre diet, exercise regime and bowel training programme
Chronic constipation necessitating the use of high doses of laxatives
Recent onset of faecal incontinence

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## MANAGEMENT OF CONSTIPATION

Individuals who do not meet the diagnostic criteria for constipation may only need reassurance and an explanation of normal healthy bowel habits. The need for reduction of excessive laxative use should also be stressed. **Healthy bowel habits** include a prompt response to the urge to defaecate. The establishment of a consistent time for defaecation is desirable, with the aid of the gastrocolonic response at the post-prandial period, particularly the morning rush. During defaecation, maintaining the body upright with the hip flexed shall make the anorectal angle less acute. This will theoretically help stool passage. For very frail older persons who cannot maintain sitting balance, an aid to keep the person sitting upright is essential for passing stool comfortably. The availability of appropriate **toilet facilities** is important for individuals with mobility problems. Bed pans should be avoided, wheelchair accessibility should be evaluated and toilet facilities should be modified as needed (e.g., installation of a hand-rail or raised toilet seat).



**Dietary fibre** can increase stool weight and accelerate colonic transit. A fibre intake of 20–30 g per day is usually recommended. Fibre supplementation in the form of wheat bran, fruit (e.g., prunes, blackberries, grapes) and vegetables (e.g., beans, peas, broccoli) in a palatable form to institutionalized older people is of particular importance. A high fibre diet may result in gastrointestinal upset such as bloating and flatulence, which can be minimized by starting low and going slow. Despite a lack of evidence that **extra fluid and exercise** help to relieve constipation, maintaining adequate hydration, particularly for those who are taking bulk-forming or osmotic laxatives, and encouraging mobility is still beneficial to individuals in general

Many patients need to resort to laxatives for their bowel problems despite trying life-style modifications. A review written by the author on pharmacological treatment of constipation for Issue 22 of the HKCS Newsletter in June 2010 (<http://www.hkcs.hk/newsletter/1006.pdf>) has discussed the subject thoroughly.

The American Gastroenterological Association Medical Position Statement on Constipation 2013<sup>13</sup> has suggested a **practical approach to the medical management of constipation**. An initial gradual increase in fibre intake is recommended, with or without addition of inexpensive osmotic agents, such as milk of magnesia or polyethylene glycol. Depending on stool consistency, the next step may be to supplement the osmotic agent with a stimulant laxative (e.g., bisacodyl or glycerol suppositories), which is preferably administered 30 minutes after a meal to synergize the pharmacologic agent with the gastrocolonic response. Newer agents should be considered when symptoms do not respond to traditional laxatives.

There has been an increase in use of **complementary and alternative medicine (CAM)** in the Western World in recent years. Manual colonic massage appears to be the simplest treatment. This has been widely practiced in palliative and long term care settings. Other CAM options include probiotics, acupuncture, homeopathy, shiatsu, herbalism, reflexology and aromatherapy.

### **Faecal impaction**

Faecal impaction (inability to pass a collection of stool, usually hard in consistency) is an important topic in geriatrics as it is common and leads to significant morbidity but is easily missed. Constipation results in faecal retention while colon's normal absorption of salt and water contributes to the hardening of stool, and peristalsis causes packing. Typical symptoms include anorexia, nausea, vomiting and abdominal pain. Leakage of liquid faeces (from mucus production dissolving surface bowel content) around hard impacted faeces causes paradoxical diarrhoea (spurious diarrhoea) and, as a result of rectal sensation impairment and anal sphincter relaxation, faecal incontinence. The urinary bladder nearby can be affected resulting in urinary frequency, retention and overflow incontinence. Patients will be prone to urinary tract infections. Other complications include stercoral ulcerations with bleeding or perforation, intestinal obstruction, idiopathic megacolon, volvulus and fecaloma. Mental confusion has also been a reported complication, presenting as delirium in an individual with pre-existing cognitive impairment.

Diagnosis of faecal impaction, especially when a patient presents with non-specific complaints like anorexia and nausea, requires a high index of suspicion. Rectal examination is crucial in all cases but a judicious use of plain abdominal X-ray can help in picking up proximal or 'high' impaction.

Manual fragmentation and extraction, with the aid of lignocaine jelly, of the faecal mass is often needed as the first treatment of faecal impaction. Repeated enema or suppository, to the extent of daily use for a week, may also be required. Whole gut irrigation using 2 L of polyethylene glycol electrolyte balance colonic lavage solution is a useful alternative in non-emergency cases without complete obstruction. Prevention of further impaction is essential. This may be achieved with lifestyle methods but the use of regular bulk-forming or osmotic laxatives with adequate hydration might seem necessary in some cases.

### **CONCLUSION**

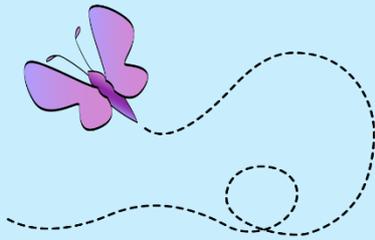
Constipation is common in older persons. Diagnosis of constipation does not rely solely on the frequency of bowel movements. Expectations of daily bowel movements in some older persons will result in misuse of laxatives. Assessment should focus on recent changes in bowel habits. In older persons, secondary causes of constipation should be meticulously considered and the possibility of iatrogenesis should not be overlooked. Faecal impaction is common and can cause significant morbidity but is easily missed. Management of constipation in older persons should be individualized and may require involvement of multiple domains including counselling, lifestyle modifications, toilet modifications, posture maintenance, environmental modifications, increase intake of fibre, pharmacological therapies and, in some cases, complimentary therapies.

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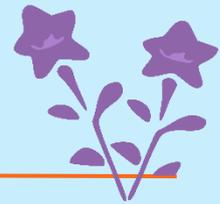
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# Nursing Management in Nocturia



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### Introduction:

International Continence Society defined nocturia as “the complaint that the individual has to wake at night one or more times for voiding and each void must be preceded and follow by sleep. [1] Nocturia is a symptom, not a diagnosis. Individuals with nocturia may consider nocturnal frequency to be a normal part of aging. They may not consider their condition to be sufficiently serious to warrant consulting a physician and thus may not seek medical attention for nocturia.

Although its prevalence is generally underestimated, nocturia is in fact an extremely common condition affecting both men and women of all ages. Clinically relevant nocturia ( $\geq 2$  voids per night) affects 2%-15% of those aged 20-40 years, 20-30% for those aged 50-70 years, rising to 10%-50% for those aged 70-80 years. [12] Consequences has a profound impact on quality of life and health status, especially in the young, that may be associated with increased morbidity and mortality.

### Etiology of nocturia:

The pathophysiology of nocturia is complex and multifactorial and can be broadly categorized into four causes: 1) Nocturnal polyuria is defined as an increase in nighttime urine production with a corresponding decrease in daytime urine production, resulting in a normal 24-hour urine volume; [12] 2) Global polyuria is continuous overproduction of urine not limited to sleep hours and defined as 24- hour urine output of more than 40ml/kg; [12] 3) Patients with reduced bladder capacity most likely have a reduced voided volume or a sleep disorder. Decreased nocturnal bladder capacity can be related to prostatic obstruction, nocturnal detrusor overactivity and bladder stone etc; [15] 4) Patients with mixed causes are related to more than one etiology.

The table below to show the etiology of nocturia:

	Nocturnal polyuria	Global polyuria	Reduced bladder capacity
Definition	Nocturnal urine volume > 0.33 of total 24 hour urinary volume	24 hour urinary output >40ml/kg body weight	Urine production within normal limits, increased frequency and small voided >0 suggest >2 strongly suggest
Possible causes	-Impaired circadian rhythm of AVP secretion -CHF -Renal insufficiency -Excessive evening fluid intake -Diuretic -Alcoholism -Sleep apnoea -Oedema -Hypoalbuminemia -Oestrogen deficiency	-Poorly DM control -Diabetes insipidus -Polydipsia	-OAB -Bladder outlet obstruction -UTI -Interstitial cystitis -Bladder hypersensitivity -Stone -Bladder cancer -Bladder wall fibrosis

### Medications that may cause nocturia:

Some medications can precipitate nocturia and medication review is warranted in all patients. [7]

Medications	Side effects
Calcium Channel Blockers (CCB) e.g. Norvasc, Adalat	Retention of urine, constipation, ankle oedema resulting in nocturnal polyuria
Diuretics e.g. Lasix, Aldactone	Polyuria Urgency urinary incontinence
NSAIDS e.g. Naproxen, Volteren, Aspirin	Fluid retention, ankle oedema

### Impact of nocturia:



Sleep is an essential part of life because it contributes significantly to the restoration and recuperation of our physical and mental functioning. At least two voids per night is associated with impaired quality of life and overall health status as well as have a huge impact on their lives. Frequent sleep interruptions associated with nocturia are likely to interfere considerably with daytime functioning, especially in people who still have a professional and social life. [14] Indeed, nocturia results in excessive daytime fatigue, lower levels of energy and vitality and work absenteeism. [11] They are also confronted

with increased confusion and daytime sleepiness at work which may constitute a major hazard for occupational accidents. [4] A reduction in sleep quality is independently associated with indicators of poor health common to those associated with nocturia, including obesity, cardiovascular disease, diabetes and hypertension. [3] The increased mortality rate associated with nocturia was likely due to its association with impaired sleep, as well as the increased risks of falls and related fractures in patients with nocturia, especially elderly patients. [10] Both benign prostatic hyperplasia (BPH), lower urinary tract symptom(LUTS) and overactive bladder (OAB) are associated with nocturia, which is often the prevailing factor leading to nighttime falls and fractures. Besides this, nocturia affects bed partners and carers and can cause relationship disturbances. [16]

### Comprehensive nursing assessment:

A thorough assessment of nocturia and its possible causes is crucial before treatment initiation. The evaluation of a patient should begin with taking a detailed history to assess and understand and discriminate LUTS in general and nocturia in particular. [13]

A simple urine test such as MSU should be taken to exclude any relevant pathology. During physical examination, patients should be screened for oedema, enlarged bladder or prolapse. Neurologic examination should include evaluation of anal sphincter tone, the bulbocavernosus reflex and sensation in the sacral dermatomes. Uroflow and post-void residual urine should also be done in the assessment. [5]

### Frequency volume chart (FVC):

FVC defined as a 24-hour evaluation of the time of urination and the volume. It is an invaluable tool in the diagnosis of the underlying causes of nocturia. It provides objective information on the characteristics of the patient's urinary frequency and volume, as well as timing and type of fluid intake. [2] It is important that the need for accuracy is explained to the patients before asking them to complete for 2 to 3 days.

Analysis of FVC can reveal many important clues to the aetiology of nocturia, including total 24-hour urine volume (evaluating global polyuria), nocturnal urine volume (evaluating nocturnal polyuria), voiding frequency and voided volumes (evaluating bladder storage or prostatic problems)

**Formula for nocturia evaluation:**

1. NUV (Nocturnal Urine Volume): exclude the last void before going to bed but include the 1<sup>st</sup> morning void (this void is excreted by the kidneys during sleep time)
2. NPi (Nocturnal Polyuria Index)=NUV/24 hour urine volume : >0.33 suggest nocturnal polyuria
3. MVV ( Maximum Voided Volume): largest volume of urine voided throughout the 24 hours period
4. 24 hour urine volume/body weight
  - 40ml/kg suggest global polyuria
5. Ni (Nocturnal Index)=NUV/MVV
  - ANV (Actual Nightly Voids)
  - PNV ( Predicted Nightly Voids)=Ni-1
  - NBCi ( Nocturnal Bladder Capacity Index)=ANV-PNV
    - >0 suggested reduced nocturnal bladder capacity
    - >2 strongly suggestive

**Nursing management of nocturia:**

The causes of nocturia should be first evaluated in all patients. Afterwards, the underlying pathophysiology should be treated specifically, alone with lifestyle interventions or combination with drugs or (prostate) surgery.

**Non-pharmacological measures:**

Fluid restriction in the evening may help to alleviate the symptom, especially in patients who also have urgency urinary incontinence. Moreover, consumption of caffeinated or alcoholic drinks in the evening should be avoided. It is important to maintain adequate fluid intake at daytime. (1.5L to 2L/day if not contraindicated). Remind patients to empty bladder before going to bed and reduce dietary salt intake. Moreover, the sleep environment should be optimized with attention to room temperature, noise, lighting and consistent times of going to bed.

Diuretics taken during late afternoon (6 hours before sleep time) may also help to release fluid built up during the day. If patients report of lower limbs oedema, it is advisable to wear compression stockings and daytime elevate the legs or have an afternoon naps. This may help to redistribute fluids so it can be reabsorbed into the blood stream.

Therapies such as pelvic floor muscle exercises and bladder training are useful to decrease nocturia. Also, people with higher levels of exercises and fitness tend to have less nocturia. It is essential to remind patients to complete the FVC which is important to help a healthcare provider determine the cause of the problem and the appropriate treatment.

Strict blood sugar control might be all that is needed to control the symptoms in diabetic patients.

**Pharmacological measures:**

Pharmacological therapies are indicated after failure of lifestyle modification and behavioural treatments. Different medicinal options exist to alleviate and treat nocturia. These may be used alone or combined with behavioral modifications which have proven to be more effective. Nocturia is common among patients suffering from BPH or OAB and their nocturnal urinary frequency may be extension of their daytime symptoms because of diminished bladder storage capacity.

Alpha blocker or 5-alpha reductase inhibitors or combination therapy is effective for patients with BPH. [8]  
Anti-cholinergic and beta -3 adrenoceptor agonists is effective for patients with OAB. [9]

Desmopressin is the pharmacologic treatment for nocturnal polyuria. [6]

Nursing advice for taking alpha blocker: Monitor blood pressure and observe for hypotension.

Nursing advice for taking anti-cholingeric: observe for dry mouth, retention of urine, blurred vision or delirium. It is contraindicated for people with narrow-angled glaucoma, myasthenia gravis and gastrointestinal obstruction.

Nursing advice for taking beta-3 adrenoceptor agonists: Monitor blood pressure and observe for hypertension.

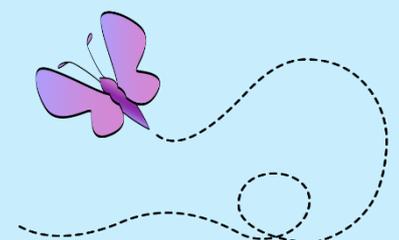
Nursing advice for taking desmopressin: Remind patients the drug should be taken one hour before going to bed. In patients of risk factors for hyponatraemia, serum sodium should be checked within 1 week of trial and the dose should be titrated.

### **Conclusion:**

Nocturia can be a debilitating problem for many people as it creates chronic sleep impairment. A good history and examination can rule out many conditions. A FVC is a key diagnostic tool. People with proper management, motivation and dedication, this condition can be overcome for a better quality of life

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