Dott. Fabio Salvi

Responsabile U.O.S. Accettazione Geriatrica

U.O.C. Geriatria, Accettazione Geriatrica e Centro di Ricerca per l'Invecchiamento

IRCCS INRCA Ancona

OUTLINE

- Epidemiologia
- Clinical features
  - Atypical presentations
  - Constipation in high risk groups
  - Drugs
- Complications
- Management & treatment
- Take Home Messages

STIPSI: DEFINIZIONI

Rome IV diagnostic criteria

Rome IV criteria
(1) Must include 2 or more of the following: • Straining in >25% of defecations • Lumpy or hard stools in >25% of defecations • Sensation of incomplete evacuation in >25% of defecations • Sensation of anorectal obstruction/blockage in >25% of defecations • Manual maneuvers to facilitate >25% of defecations (e.g., digital evacuation and support of the pelvic floor) • Fewer than 3 spontaneous bowel movements per week
(2) Loose stools are rarely present without the use of laxatives
(3) Insufficient criteria for irritable bowel syndrome

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

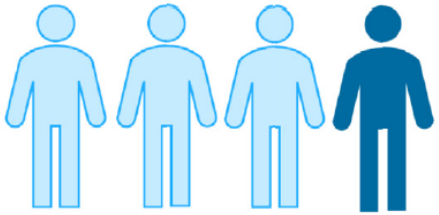
Faecal impaction

A large mass of compacted faeces at any intestinal level that cannot be evacuated spontaneously

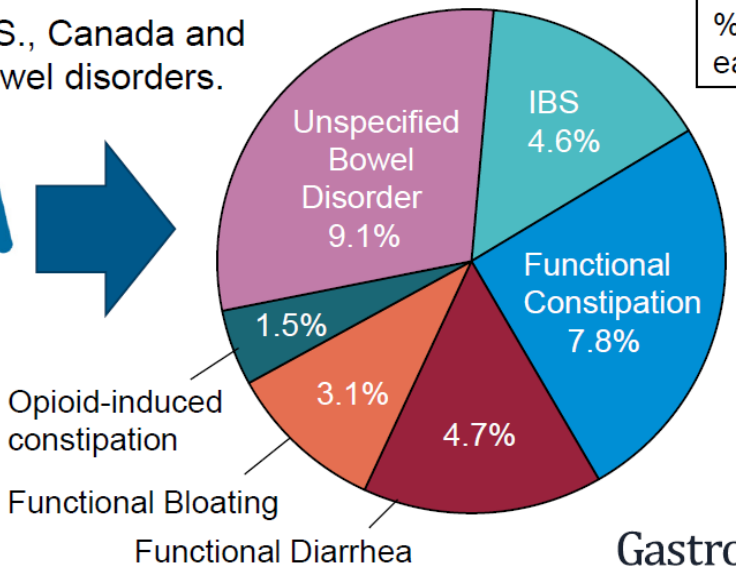
EPIDEMIOLOGIA

Prevalence of Functional Bowel Disorders

More than **1 in every 4 adults** in the U.S., Canada and the U.K. has one of the six functional bowel disorders.



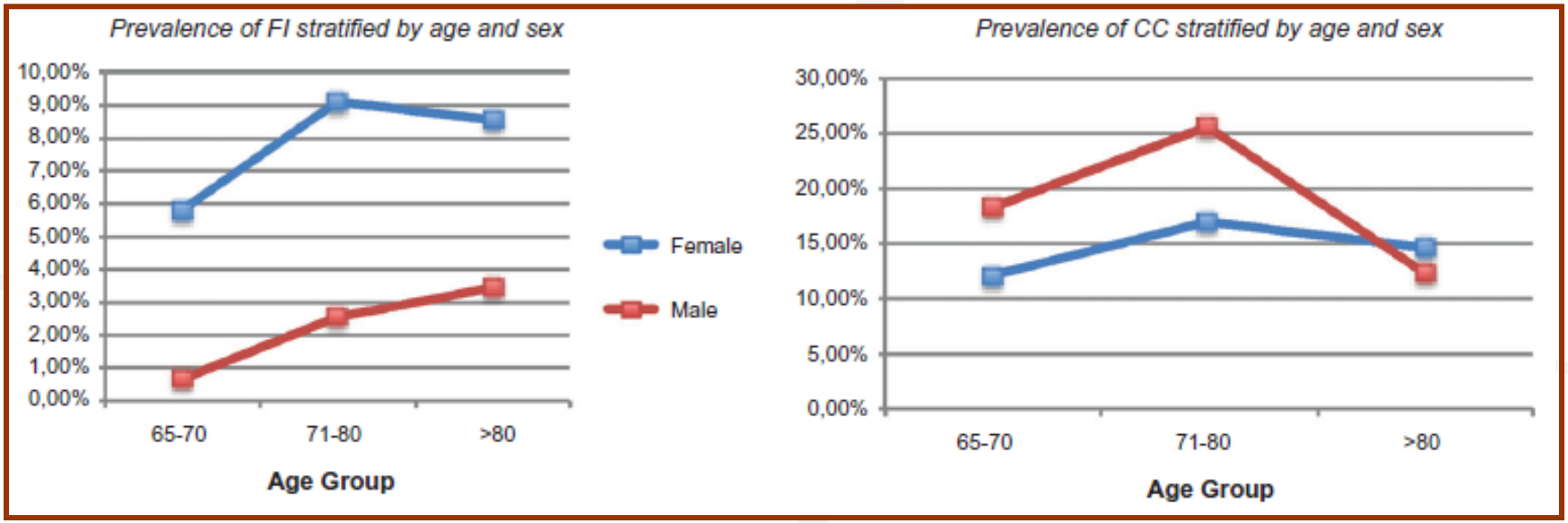
- ✓ Functional bowel disorders are more common in women than men
- ✓ They become less common after mid-life



Gastroenterology

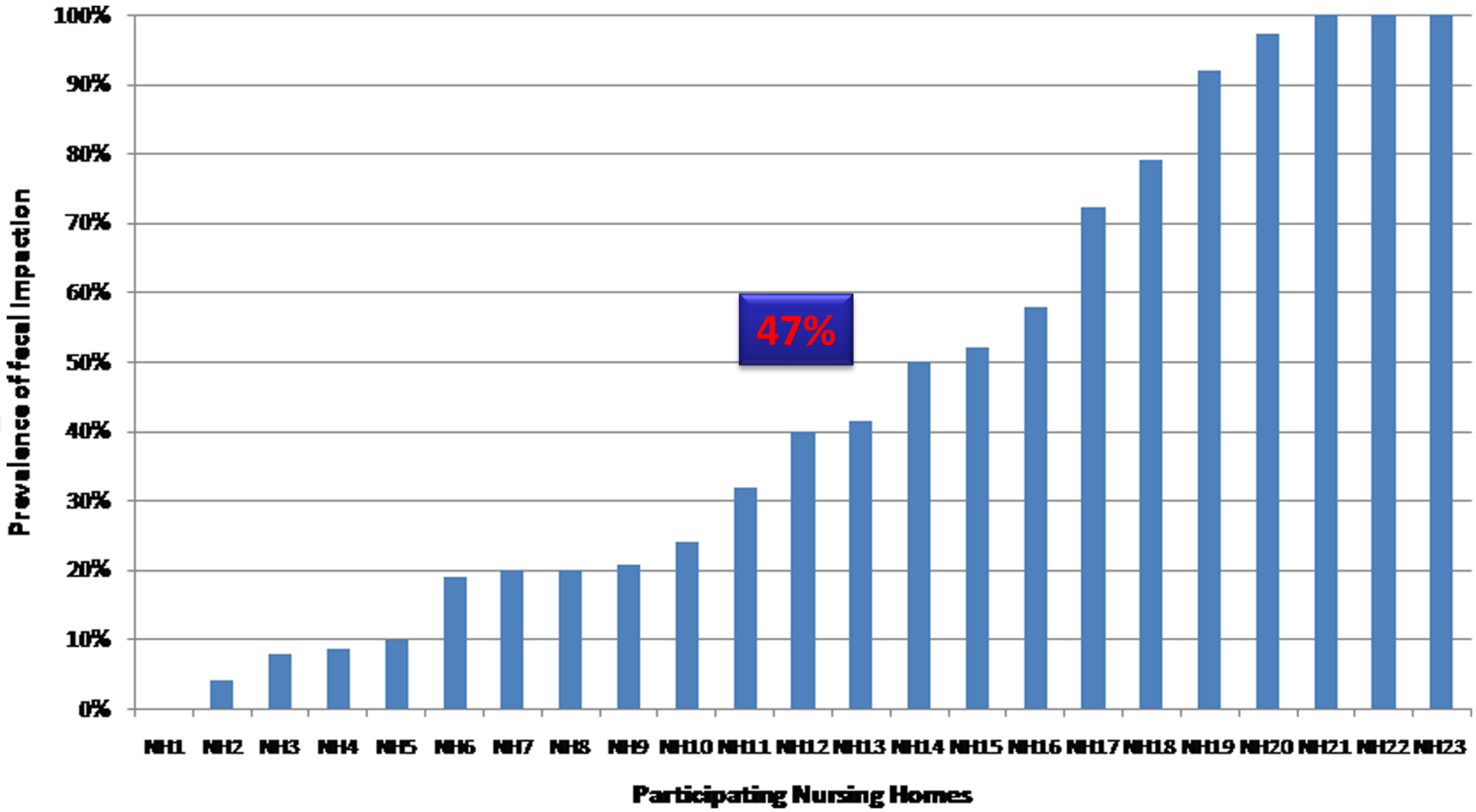
Palsson OS et al. Gastroenterology 2020

EPIDEMIOLOGIA



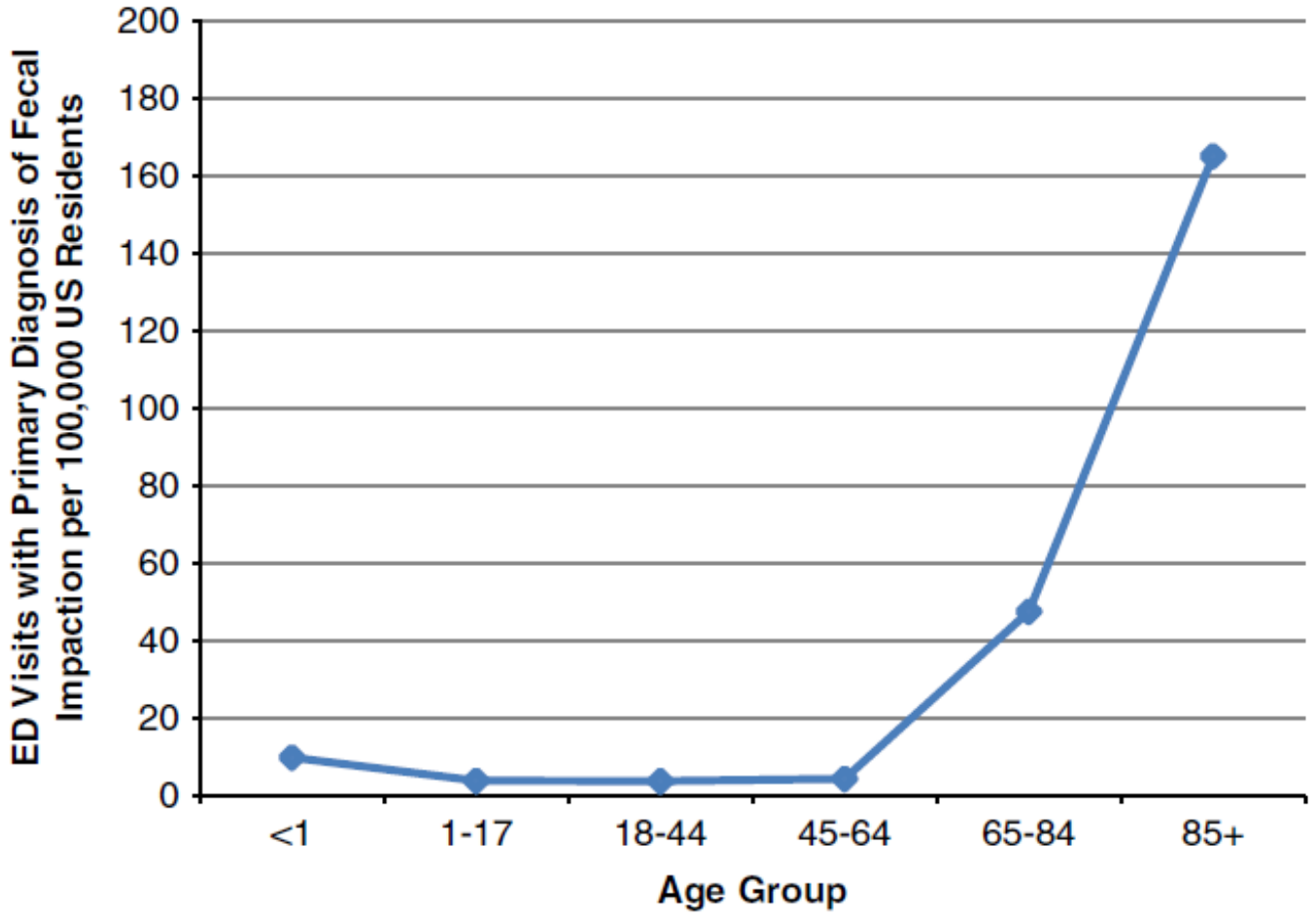
Serrano-Falcon B et al. Age Ageing 2017
Barberio B et al. Lancet Gastroenterol Hepatol 2021

EPIDEMIOLOGIA: NURSING HOMES



Rey E et al. PLoS One 2014

EPIDEMIOLOGIA: EMERGENCY DEPARTMENT



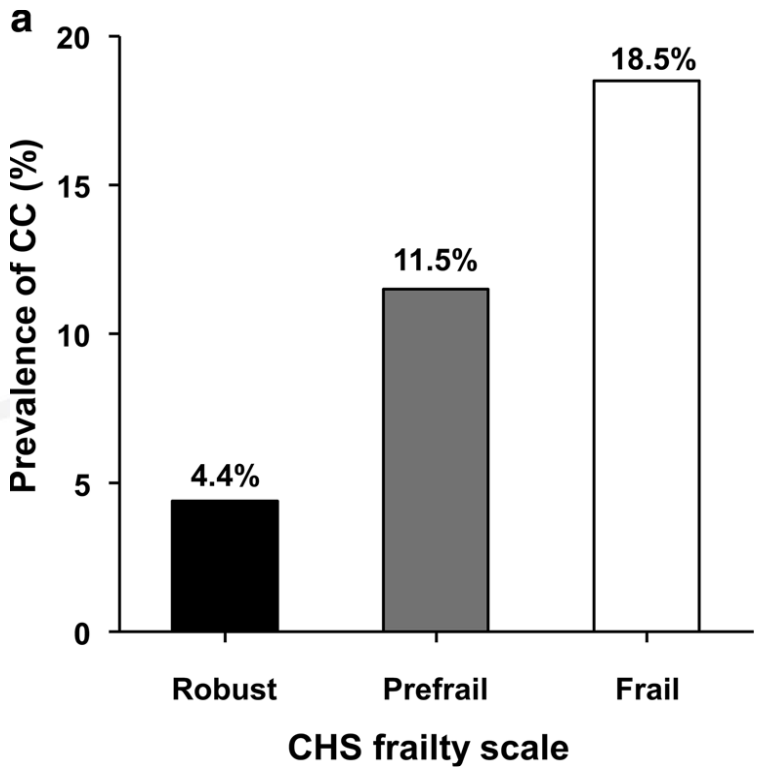
Corban C et al. J Clin Gastroenterol 2016

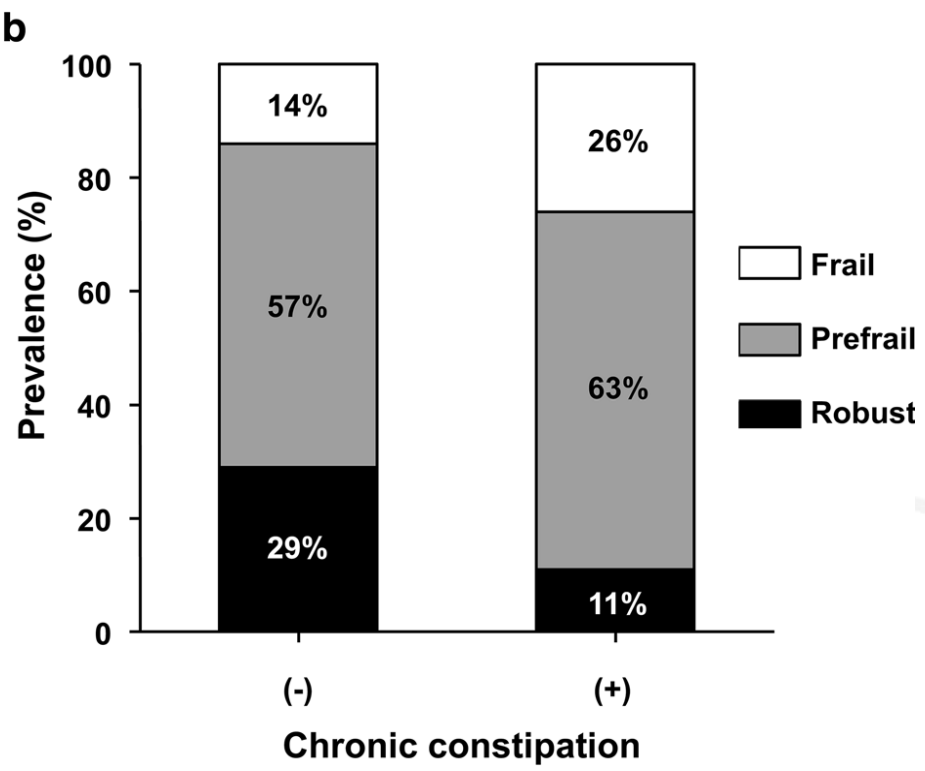
STIPSI & MULTIMORBIDITY

Rank order of conditions	Age 25–34 % (95% CI) *n* = 18 687	Age 35–44 % (95% CI) *n* = 38 884	Age 45–54 % (95% CI) *n* = 58 421	Age 55–64 % (95% CI) *n* = 85 319	Age 65–74 % (95% CI) *n* = 91 550	Age ≥75 % (95% CI) *n* = 103 446
1	Depression 46.1 (45.3 to 46.8)	Depression 46.9 (46.4 to 47.4)	Depression 38.8 (38.4 to 39.2)	Hypertension 48.5 (49.2 to 48.9)	Hypertension 58.3 (58.0 to 58.6)	Hypertension 61.9 (61.5 to 62.3)
2	Drug misuse 25.9 (25.2 to 26.5)	Pain 26.4 (25.9 to 26.8)	Hypertension 30.9 (30.4 to 31.2)	Pain 31.3 (31.0 to 31.6)	Pain 30.0 (29.7 to 30.3)	CHD 31.2 (30.9 to 31.5)
3	Asthma 23.1 (22.4 to 23.7)	Asthma 19.0 (18.6 to 19.4)	Pain 29.6 (29.2 to 30.0)	Depression 28.0 (27.8 to 28.3)	CHD 26.1 (25.8 to 26.4)	Pain 23.6 (23.3 to 23.8)
4	Anxiety 19.8 (19.3 to 20.4)	Anxiety 17.8 (17.4 to 18.1)	Dyspepsia 18.4 (18.1 to 18.7)	Diabetes 17.7 (17.4 to 18.0)	Diabetes 21.1 (20.8 to 21.4)	CKD 18.5 (18.2 to 18.7)
5	Pain 19.1 (18.6 to 19.7)	Dyspepsia 16.5 (16.1 to 16.8)	Asthma 14.2 (13.9 to 14.4)	Dyspepsia 17.2 (16.9 to 17.4)	Depression 18.5 (18.3 to 18.8)	Depression 17.2 (17.0 to 17.4)
6	Alcohol dependence 14.5 (14.0 to 15.0)	IBS 15.2 (14.8 to 15.5)	Diabetes 13.6 (13.4 to 13.9)	CHD 15.9 (15.6 to 16.1)	Dyspepsia 15.9 (15.7 to 16.2)	Diabetes 17.2 (17.0 to 17.5)
7	IBS 14.4 (13.9 to 14.9)	Drug misuse 14.8 (14.4 to 15.1)	Anxiety 13.6 (13.3 to 13.9)	Thyroid 13.9 (13.7 to 14.2)	COPD 14.6 (14.4 to 14.8)	Constipation 17.0 (16.7 to 17.2)
8	Dyspepsia 10.4 (10.0 to 10.8)	Hypertension 13.7 (13.3 to 14.0)	IBS 13.5 (13.3 to 13.8)	IPA 13.3 (13.1 to 13.7)	Thyroid 14.5 (14.3 to 14.8)	Stroke 16.6 (16.4 to 16.8)
9	Thyroid 7.5 (7.1 to 7.8)	Alcohol dependence 13.3 (13.0 to 13.6)	Thyroid 13.1 (12.8 to 13.4)	COPD 11.1 (10.8 to 11.3)	IPA 13.7 (13.5 to 13.9)	Thyroid 15.9 (15.7 to 16.1)
10	Hearing loss 6.9 (6.6 to 7.3)	Thyroid 10.9 (10.6 to 11.2)	Alcohol dependence 12.3 (12.0 to 12.6)	Anxiety 10.8 (10.6 to 11.0)	Stroke 10.5 (10.3 to 10.7)	Hearing loss 15.5 (15.3 to 15.7)

McLean G et al. Br J Gen Pract 2014

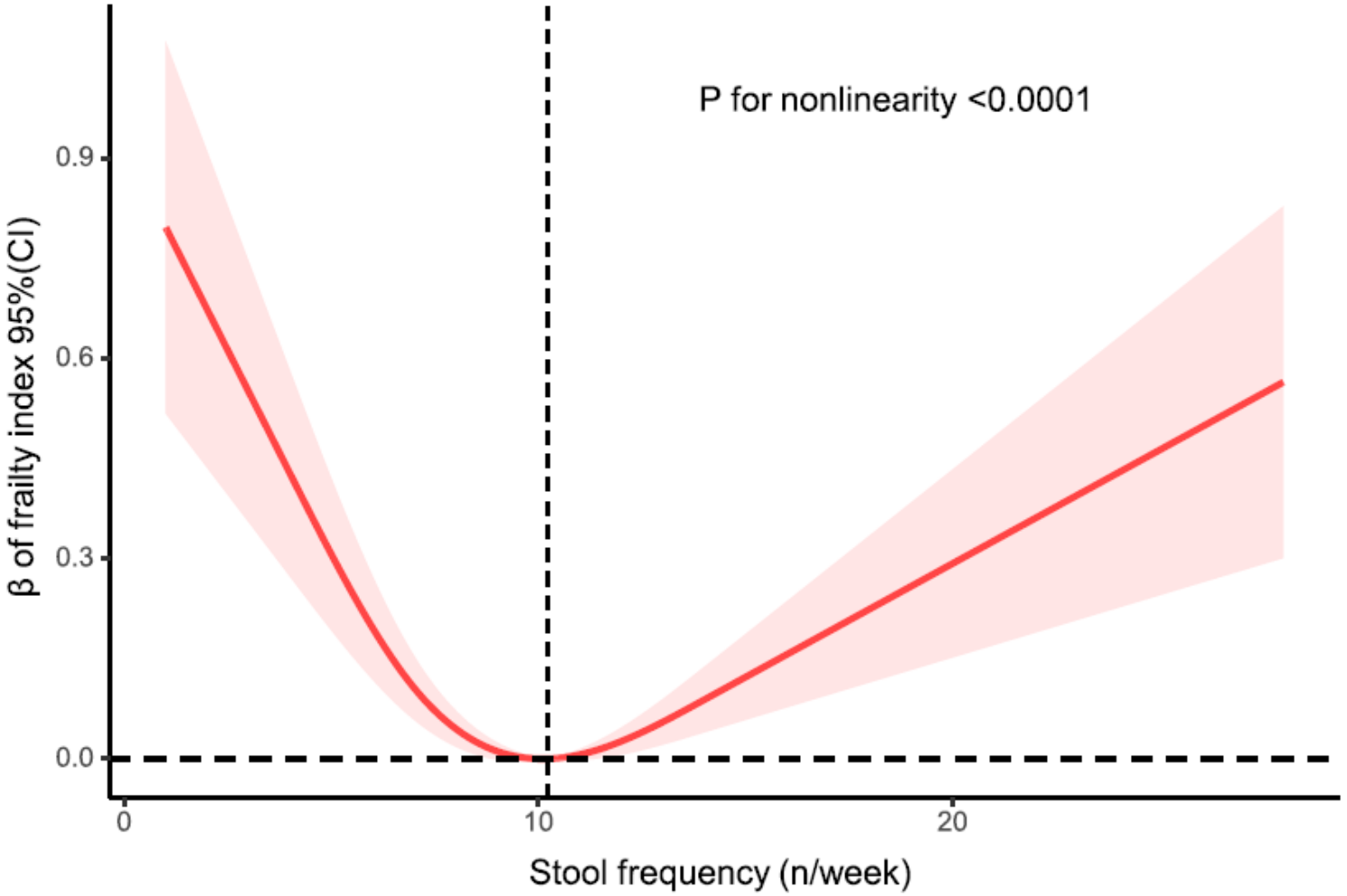
STIPSI & FRAILTY





Lim J et al. BMC Gastroenterol 2021

STIPSI & FRAILTY



Liu X et al. BMC Geriatr 2023

OUTLINE

- Epidemiologia
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  - Atypical presentations
  - Constipation in high risk groups
  - Drugs
- Complications
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- Take Home Messages

F. Salvi • V. Morichi • A. Grilli • R. Giorgi • G. De Tommaso • P. Dessì-Fulgheri

The elderly in the emergency department: a critical review of problems and solutions

Intern Emerg Med (2007) 2:292–301

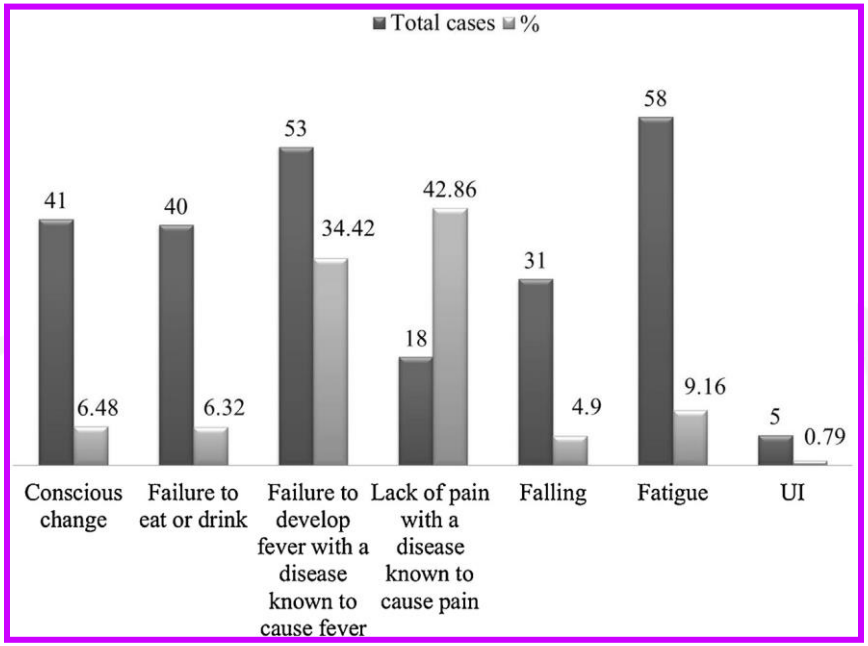
- ***The elderly in the ED is a diagnostic challenge***

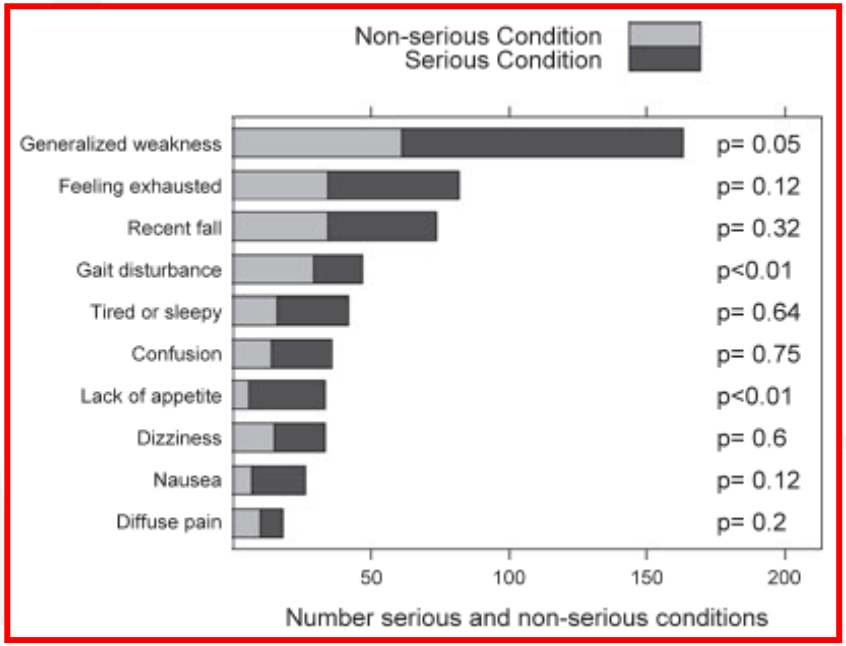
Disease presentations in the elderly:

- **Classic**
- **Silent**
- **Pseudosilent**
- **Atypical**
  - **Weakness/fatigue**
  - **Functional decline**
  - **Falls/immobilization**
  - **Incontinence**
  - **Delirium**
  - **“Social crisis”**

ATYPICAL PRESENTATIONS

Prevalence of atypical presentations: 28,6%



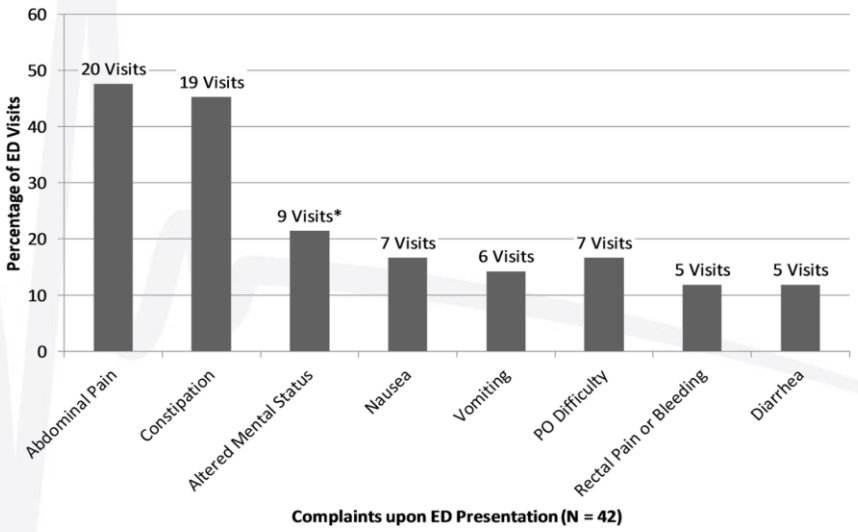


Limpawattana P et al. Arch Gerontol Geriatr 2016

Nemec M et al. Acad Emerg Med 2010

STIPSI: SINTOMI

- Constipation
- Rectal discomfort
- Anorexia
- Nausea
- Vomiting
- Abdominal pain
- Paradoxic diarrhea
- Fecal incontinence
- Urinary frequency
- Urinary overflow incontinence
- Confusion
- Agitation
- Syncope



Obokhare I. Clin Colon Rectal Surg 2012
Sommers T et al. Dig Dis Sci 2018

ANOREXIA & CONSTIPATION

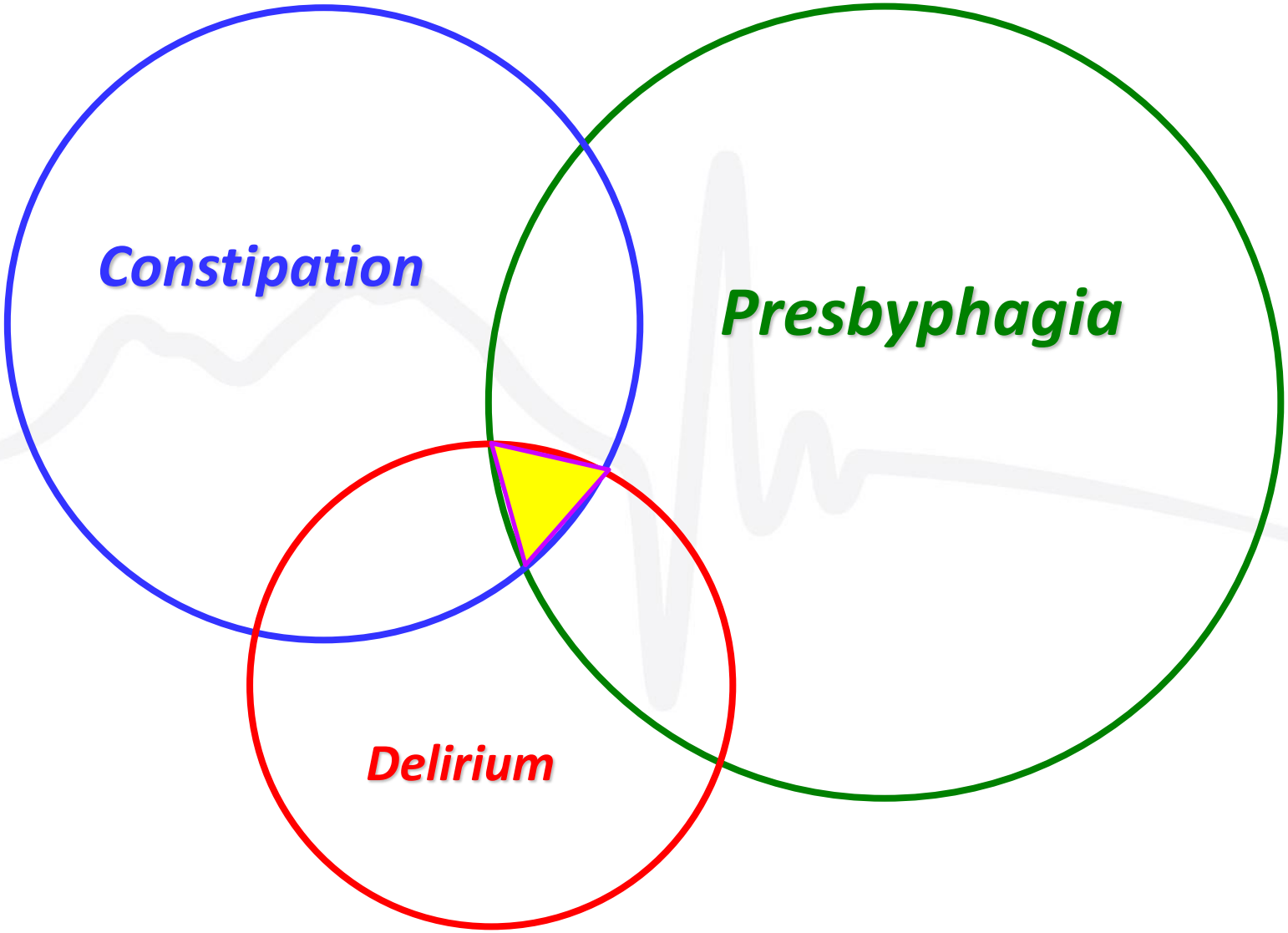
	Unadjusted	Model 1	Model 2	Model 3
	Risk of Anorexia OR (95% CI)			
Age	1.04 (1.02–1.06)	1.04 (1.02–1.06)	1.03 (1.01–1.05)	1.03 (1.01–1.05)
Sex (female)	1.37 (0.99–1.88)	1.13 (0.82–1.58)	1.20 (0.85–1.69)	1.25 (1.01–1.05)
ADL impairment	1.03 (1.02–1.05)		1.03 (1.01–1.05)	1.03 (1.00–1.05)
CPS impairment	1.09 (1.02–1.17)		0.93 (0.85–1.01)	0.92 (0.82–1.02)
Behavioral problems	1.57 (1.20–2.07)		1.71 (1.27–2.31)	1.50 (1.08–2.08)
Urinary incontinence	1.58 (1.15–2.18)		0.94 (0.63–1.41)	0.93 (0.60–1.44)
Pressure ulcer	1.58 (1.06–2.36)		1.21 (0.78–1.88)	1.31 (0.82–2.10)
Chewing problem	2.0 (1.45–2.66)		1.56 (1.14–2.14)	1.87 (1.33–2.62)
Swallowing problem	1.98 (1.40–2.80)		1.42 (0.95–2.11)	1.35 (0.88–2.07)
Dementia	1.73 (1.32–2.28)			2.05 (1.40–2.99)
Depression	1.58 (1.16–2.16)			2.16 (1.51–3.11)
Renal failure	1.81 (1.16–2.82)			1.89 (1.13–3.17)
Constipation	4.37 (1.80–10.68)			3.79 (1.40–10.24)
Number of drugs	0.97 (0.92–1.02)			0.95 (0.89–1.01)
PPI	1.52 (1.13–2.06)			1.63 (1.15–2.31)
Opioids	2.29 (1.43–3.64)			2.25 (1.32–3.83)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
				OR (95% CI)			
Functional constipation	1.682 * (1.195–2.367)	1.543 * (1.087–2.188)	1.473 * (1.035–2.097)	1.478 * (1.038–2.104))	1.223 (0.845–1.770)	1.423 (0.995–2.034)	1.117 (0.765–1.631)
Age		1.053 (1.015–1.093)	1.047 * (1.009–1.087)	1.040 * (1.001–1.080)	1.046 * (1.008–1.086)	1.041 * (1.003–1.081)	1.028 (0.988–1.070)
Female sex		2.072 (1.544–2.781)	2.078 * (1.547–2.792)	1.934 * (1.435–2.606)	1.878 * (1.388–2.541)	2.059 * (1.525–2.779)	1.840 * (1.348–2.511)
Polypharmacy			1.443 * (1.035–2.097)				1.267 (0.926–1.733)
MMSE				0.937 * (0.898–0.978)			0.981 (0.936–1.027)
Depressed mood (GDS ≥ 6)					3.052 * (2.186–4.260)		2.568 * (1.801–3.661)
Chewing problems						2.464 * (1.827–3.322)	2.196 * (1.612–2.992)

Landi F et al. J Am Med Dir Assoc 2013

Jeong E et al. Int J Environ Res Public Health 2021

DYSPHAGIA



PARADOXIC DIARRHEA
FECAL INCONTINENCE

Guidelines for the investigation of chronic diarrhoea in adults: British Society of Gastroenterology, 3rd edition

Guidelines

Recommendations

- Faecal impaction with overflow diarrhoea should be considered especially in the elderly. We recommend clinical judgement rather than marker studies to confirm this (Grade of evidence level 4, Strength of recommendation strong).

Patient or caregiver might report a some-days long period of constipation followed by the onset of diarrhoea.

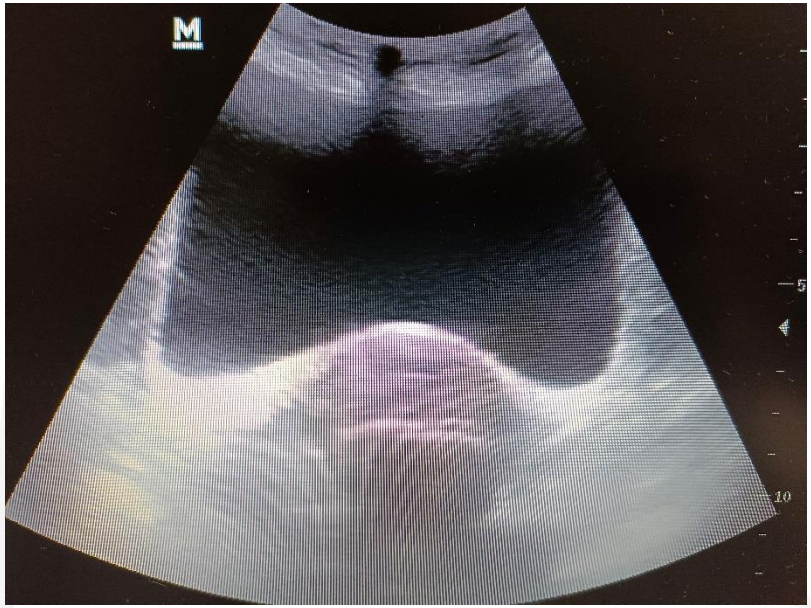
Not uncommonly, these patients are prescribed antidiarrheal drugs, which worsen the situation.

Arasaradnam RP et al. Gut 2018
Salvi F et al. Eur J Emerg Med (submitted)

URINARY RETENTION OVERFLOW INCONTINENCE

Rectal distension and pressure lead to mechanical bladder outlet obstruction, detrusor underactivity, altered bladder sensation volume (and vice versa when the bladder is full, sensation of rectal filling is decreased).

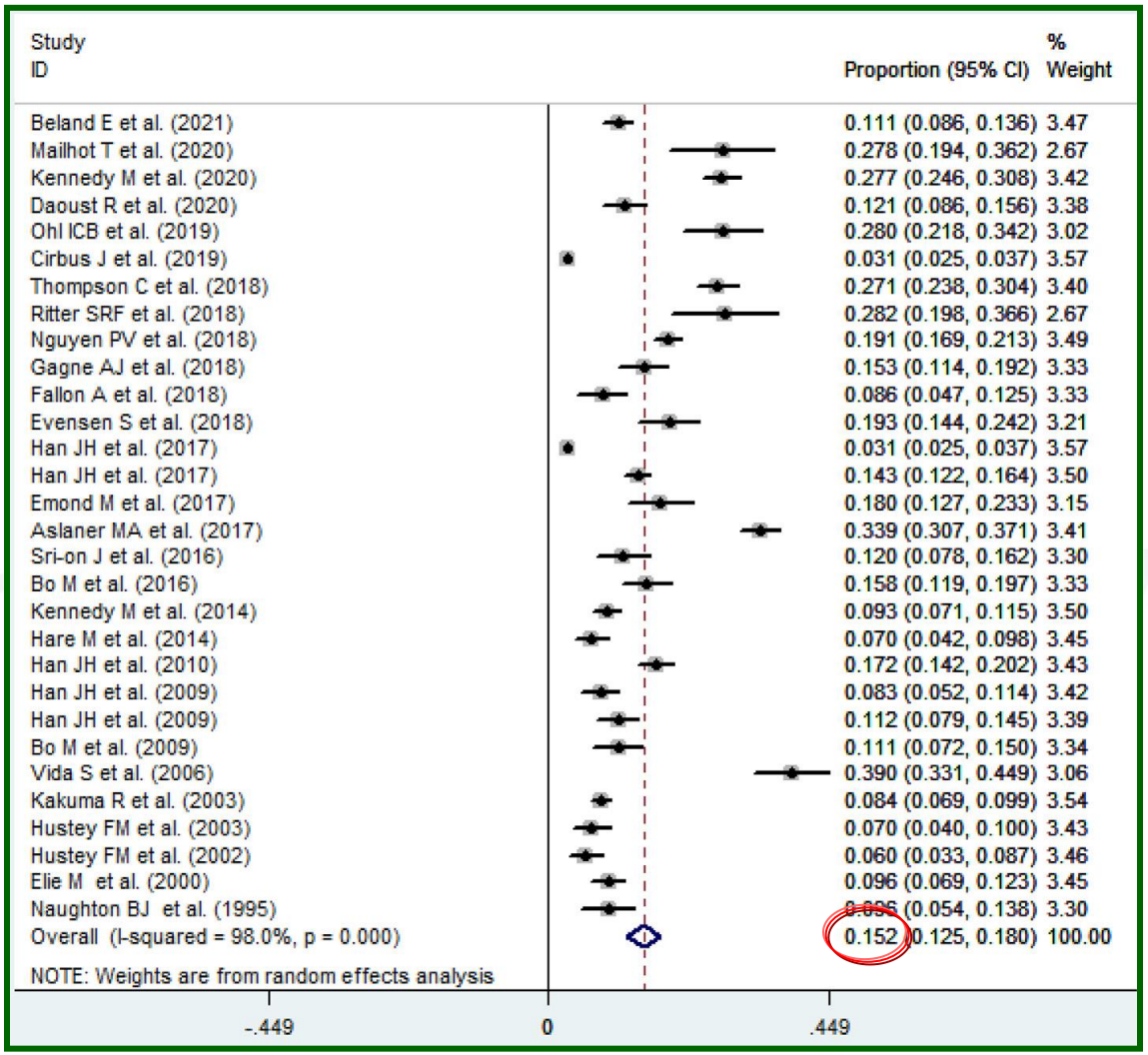
Faecal impaction should be always searched for and excluded in any patient presenting with acute urinary retention.

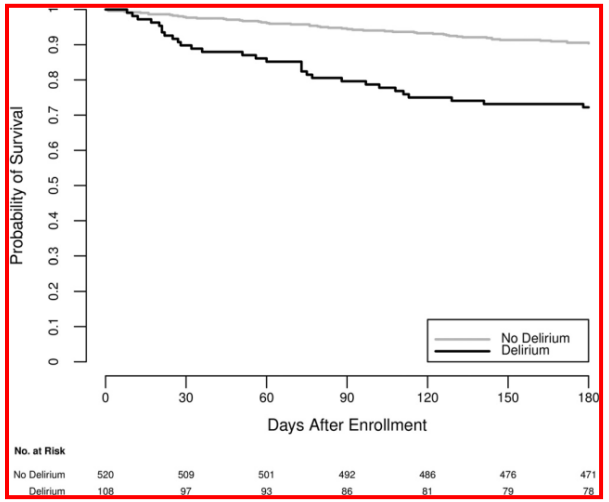


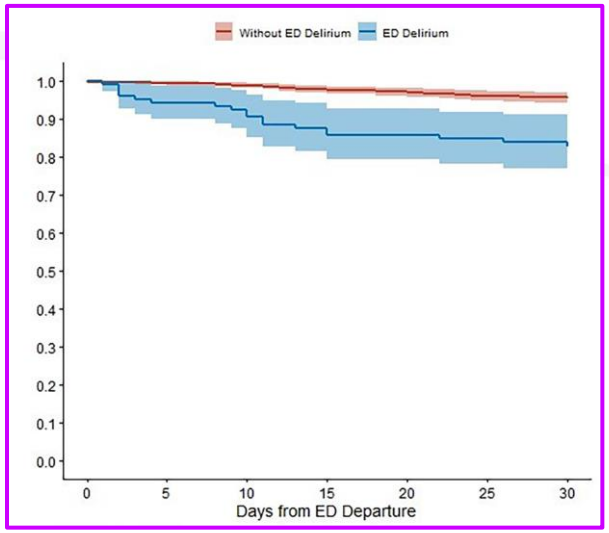
	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Discrete variables			
Sex	0.98 (0.46-2.04)	0.83 (0.37-1.79)	0.75 (0.31-1.72)
Fecal impaction	5.76 (3.11-11.12)[a]	5.72 (3.02-11.32)[a]	4.78 (2.44-9.71)[a]
Continuous variables			
Age	1.02 (0.97- 1.07)	1.02 (0.97-1.07)	1.03 (0.98-1.09)
ARS score		0.88 (0.47-1.45)	0.74 (0.31-1.38)
CIRS 52 score		1.06 (0.97-1.15)	1.06 (0.97-1.17)
Time to recover walking ability			1.11 (0.97-1.26)

Teng M et al. Ann Phys Rehab Med 2021
Salvi F et al. Eur J Emerg Med (submitted)

DELIRIUM







Chen F et al. Am J Emerg Med 2022

Han JH et al. Ann Emerg Med 2010

Arneson ML et al. Am J Emerg Med 2023

Delirium in Older Emergency Department Patients: Recognition, Risk Factors, and Psychomotor Subtypes

- **Prevalenza del delirium in PS: 8.3% (25/303)**
- **Delirium ipoattivo: 92%**
- **Missed delirium by ED physicians: 76% (19/25)**
- **Missed delirium by hospital physicians: 93.8% (15/16)**
- **Dementia, Katz ADL ≤4, hearing impairment as risk factor for presenting with delirium in the ED**

Han JH et al. Acad Emerg Med 2009

4AT

4AT

Assessment test for delirium & cognitive impairment

Patient name:

Date of birth:

Patient number:

Date: **Time:**

Tester:

CIRCLE

[1] ALERTNESS

This includes patients who may be markedly drowsy (eg. difficult to rouse and/or obviously sleepy during assessment) or agitated/hyperactive. Observe the patient. If asleep, attempt to wake with speech or gentle touch on shoulder. Ask the patient to state their name and address to assist rating.

Normal (fully alert, but not agitated, throughout assessment)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4

[2] AMT4

Age, date of birth, place (name of the hospital or building), current year.

No mistakes	0
1 mistake	1
2 or more mistakes/untestable	2

[3] ATTENTION

Ask the patient: "Please tell me the months of the year in backwards order, starting at December." To assist initial understanding one prompt of "what is the month before December?" is permitted.

Months of the year backwards	Achieves 7 months or more correctly	0
	Starts but scores <7 months / refuses to start	1
	Untestable (cannot start because unwell, drowsy, inattentive)	2

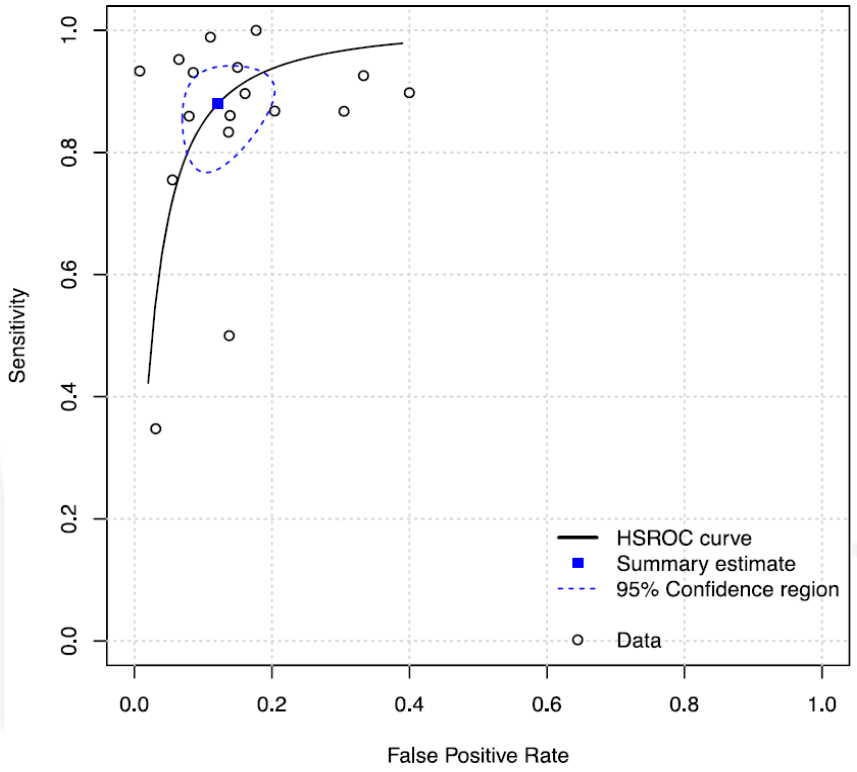
[4] ACUTE CHANGE OR FLUCTUATING COURSE

Evidence of significant change or fluctuation in: alertness, cognition, other mental function (eg. paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs

No	0
Yes	4

4 or above: possible delirium +/- cognitive impairment
1-3: possible cognitive impairment
0: delirium or severe cognitive impairment unlikely (but delirium still possible if [4] information incomplete)

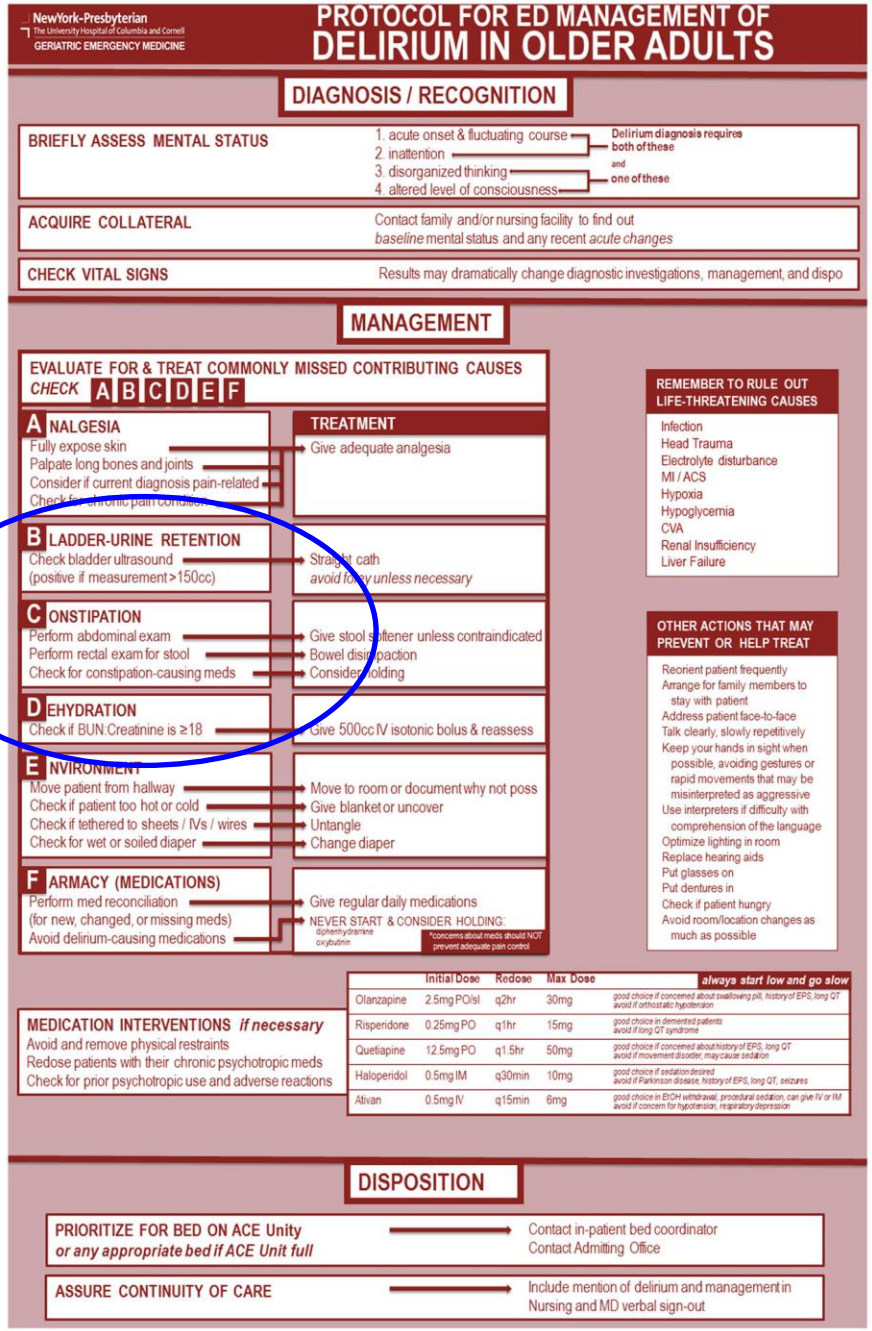
4AT SCORE ☐



Bellelli G et al. Age Ageing 2014
Tieges Z et al. Age Ageing 2021

DELIRIUM: A GERIATRIC ED APPROACH

- Medical history (**recent therapy modification**) and physical exam (search for **acute urinary retention** → BladderScan and/or **fecal impaction** → digital rectal exploration); search for **pain** (non-verbal communication; analgesia ex-adiuvantibus)
- EKG (blood gas if oxygen saturation is <92%)
- Urinary stick and glucometer test
- Labs (Hb-WBC, glycemia, urea & creatinine → BUN/creatinine ratio, electrolytes, AST/ALT, albumin, but including cardiac enzymes, BNP, PCR and, when indicated, FDP and/or TSH reflex)
- Rx (chest and/or abdomen) if indicated
- Brain CT-scan only in the presence of focal neurological signs, head trauma, a fall or in the event that another cause has not been found



Rosen T et al. Adv Emerg Nurs J 2015

SYNCOPE

Table 2 Causes of loss of consciousness in 465 patients (according to the ESC classification)

Causes of syncopes	Initial evaluation[a]	Investigations [b]	Total
Neurally mediated (reflex) (%)	202 (43)	107 (23)	309 (66)
Vasovagal syncope	101 (22)	89 (19)	190 (41)
Classical form: fear, pain, emotion, instrumentation	82 (18)	–	
Classical form: prolonged standing and typical prodromal symptoms	19 (4)	–	
Non-classical form: tilt-positive	–	38 (8)	
Likely vasovagal (non-classical form) after exclusion of other causes and absence of heart disease	–	51 (11)	
Carotid sinus syncope	0 (0)	18 (4)	18 (4)
Situational syncope[c]	71 (15)	–	71 (15)
Single/rare syncopes, no heart disease	30 (6)	–	30 (6)
Orthostatic hypotension (%)	36 (8)	10 (2)	46 (10)
Cardiac arrhythmias as primary cause (%)	30 (6)	23 (5)	53 (11)
Sinus node dysfunction (including bradycardia/tachycardia syndrome) (%)	5 (1)	7 (1)	12 (3)
Atrioventricular conduction system disease (%)	15 (3)	8 (2)	23 (5)
Paroxysmal supraventricular tachycardias (%)	8 (2)	3 (1)	11 (2)
Paroxysmal ventricular tachycardias (%)	2 (0)	5 (1)	7 (1)
Structural cardiac or cardiopulmonary disease[d] (%)	4 (1)	17 (4)	21 (5)
Cerebrovascular (%)	0 (0)	0 (0)	0 (0)
Unknown (%)	–	–	11 (2)
Causes of non-syncopal attacks (commonly misdiagnosed as syncope) (%)	–	25 (6)	25 (6)
Metabolic disorders (hypoglycaemia)	–	1 (0)	1 (0)
Epilepsy	–	8 (2)	8 (2)
Intoxication	–	2 (0)	2 (0)
Vertebro-basilar transient ischaemic attack — no. (%)	–	4 (1)	4 (1)
Falls — no. (%)	–	6 (1)	6 (1)
Psychogenic pseudo-syncope (%)	–	4 (1)	4 (1)

Brignole M et al. Eur Heart J 2006

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- Epidemiologia
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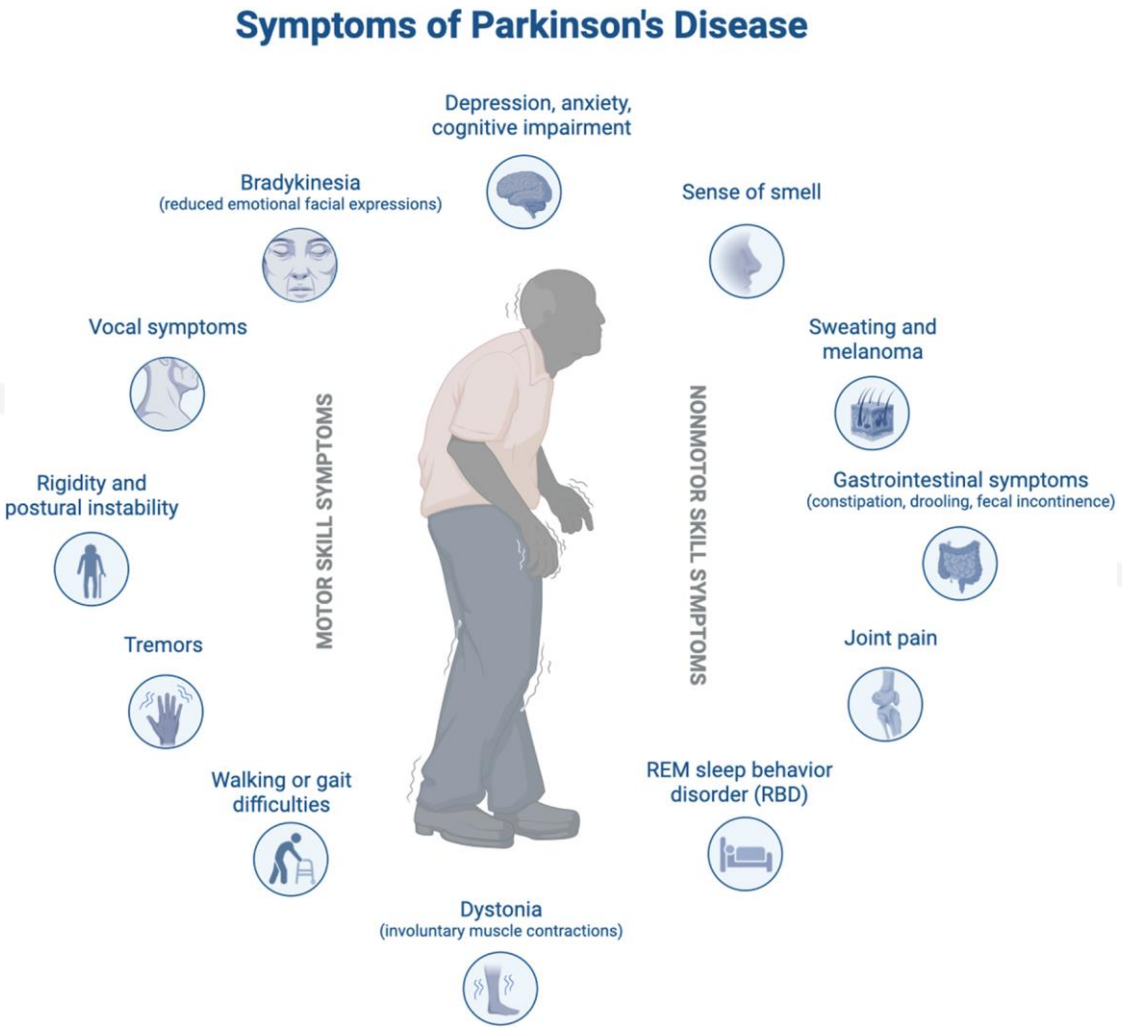
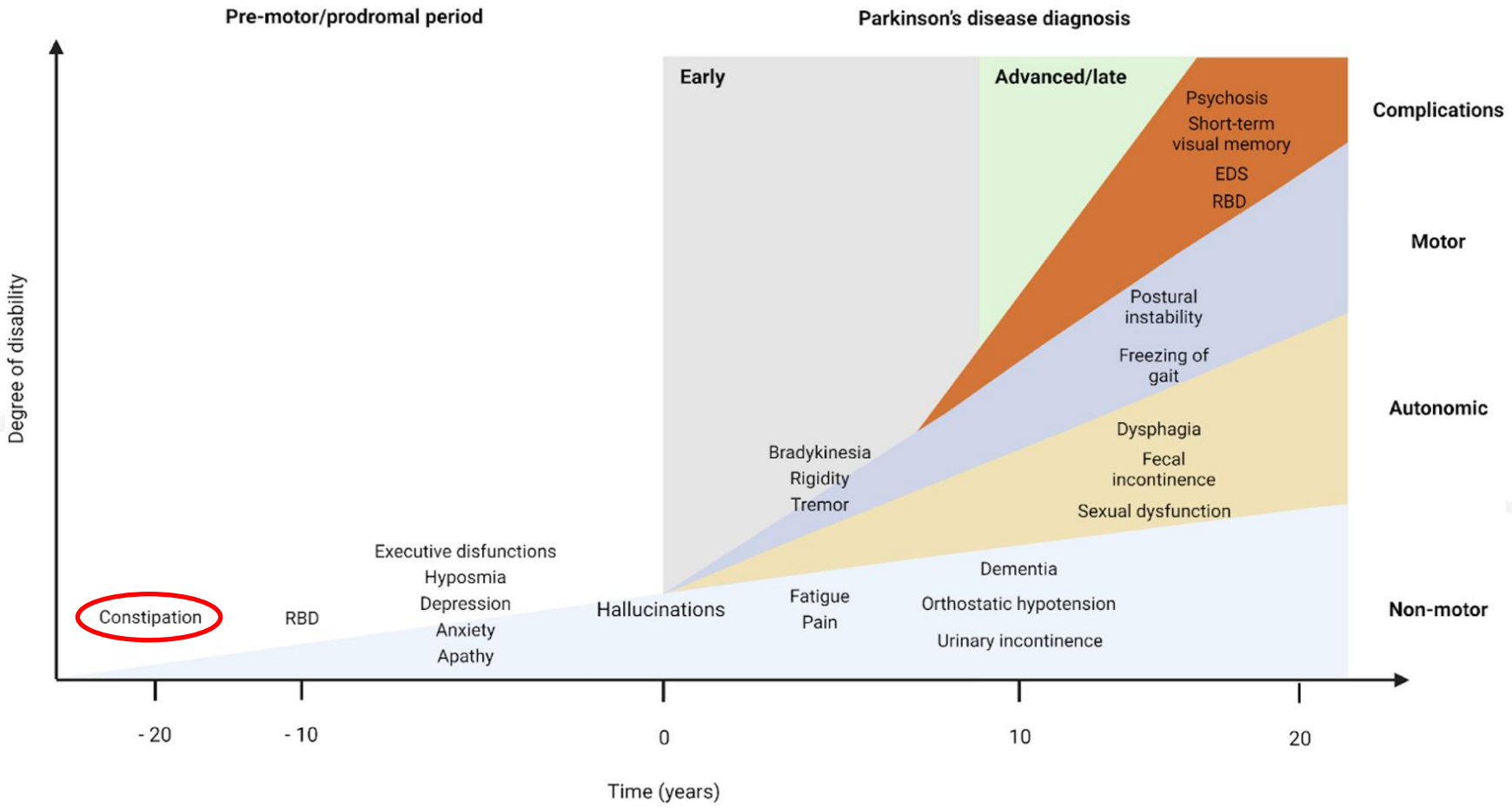
STIPSI & PARKINSON DISEASE



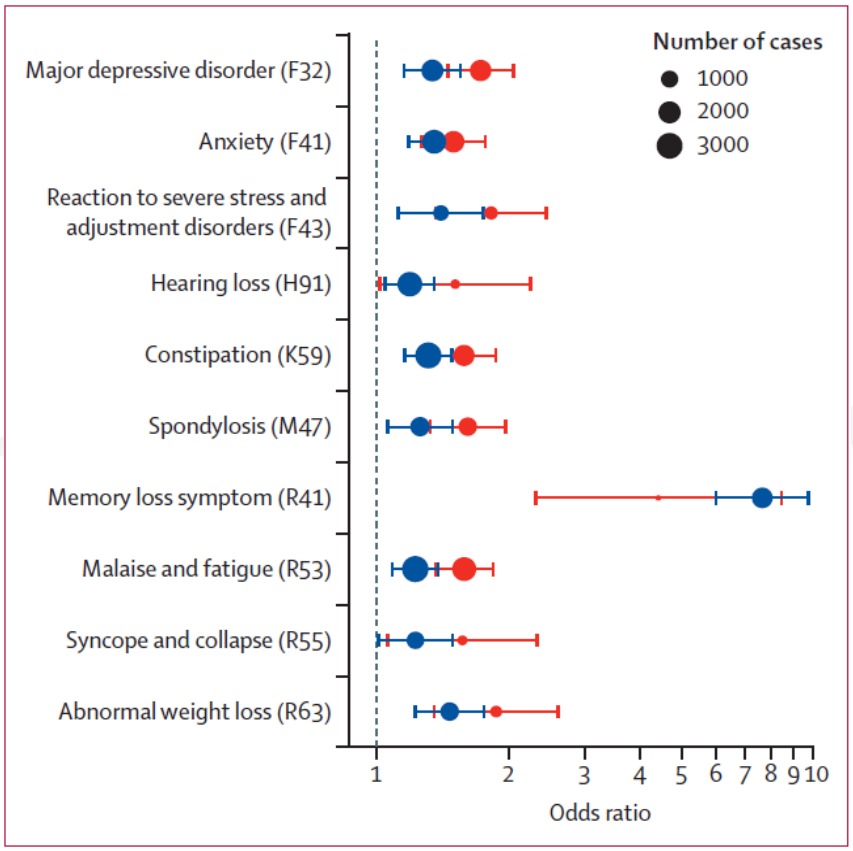
Leite Silva ABR et al. Ageing Res Rev 2023

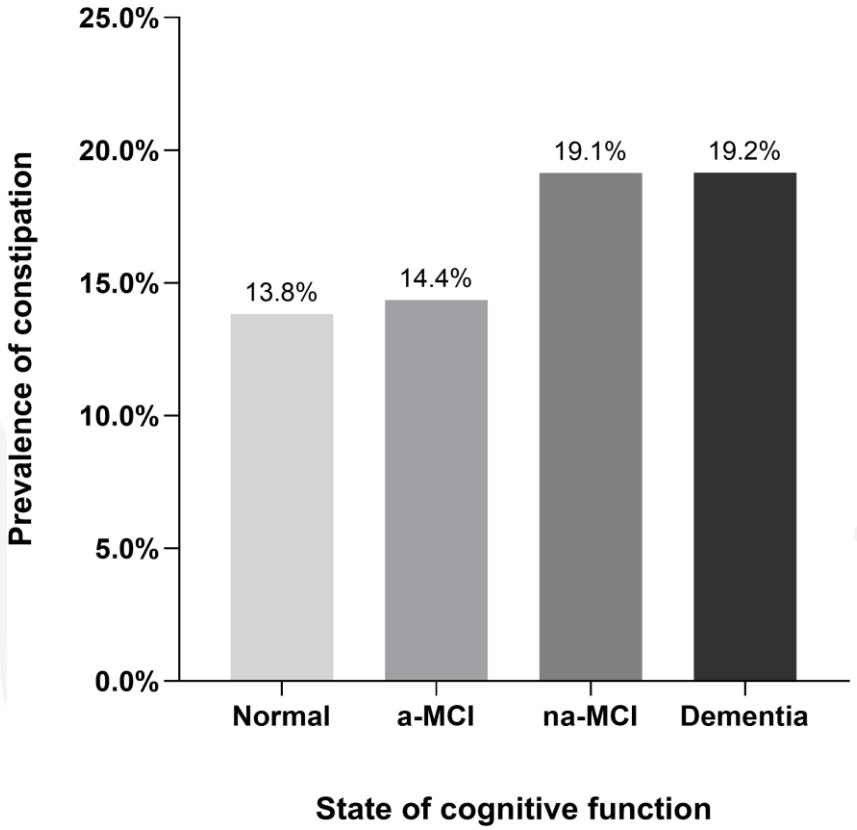
STIPSI & PARKINSON



Leite Silva ABR et al. Ageing Res Rev 2023

CONSTIPATION & DEMENTIA

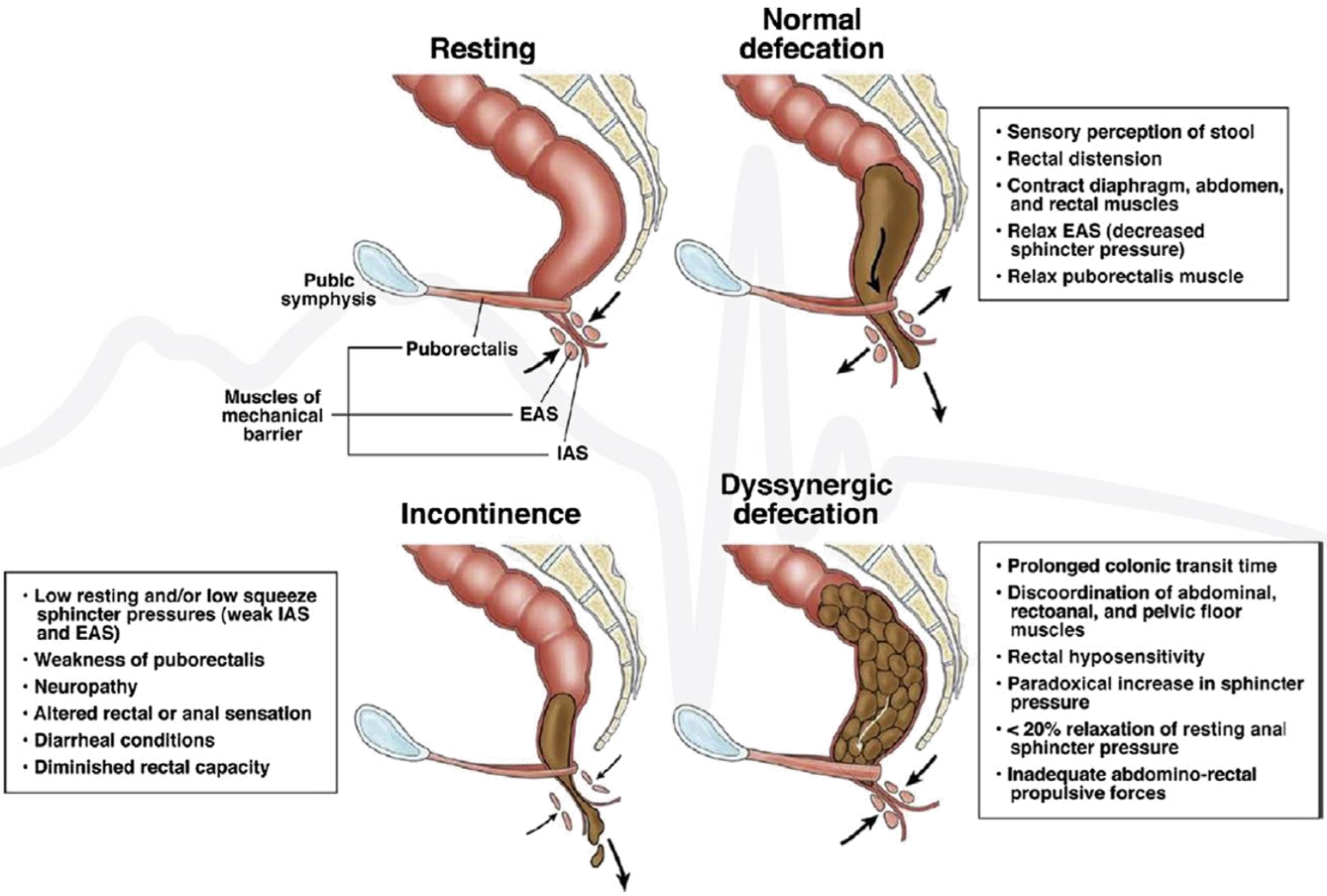




Nedelec T et al. Lancet Digit Health 2022

Wang F et al. Front Neurosci 2022

DYSSYNERGIC DEFECATION



Yu SWB, Rao SSC. Clin Geriatr Med 2014

SYNCOPE IN DEMENTIA

Table 5. Final Diagnosis of Syncope in General Population and According to Most Common Types of Dementia

Cause	All, n = 242	AD, n = 75	VD, n = 107	Mixed, n = 37[a]	Lewy Body Dementia and Parkinson's Disease, n = 18
	n (%)				
Cardiac	33 (13.6)	8 (10.7)	19 (17.8)	6 (18.2)	0 (0.0)
Arrhythmic	25 (10.3)	6 (8.0)	16 (15.0)	3 (8.1)	0 (0.0)
Structural	8 (3.3)	2 (2.7)	3 (2.8)	3 (8.1)	0 (0.0)
Reflex	61 (25.2)	18 (24.0)	25 (23.4)	13 (35.1)	5 (27.8)
Vasovagal	21 (8.7)	8 (10.7)	7 (6.5)	5 (13.5)	1 (5.6)
Situational	26 (10.7)	8 (10.7)	11 (10.3)	6 (16.2)	1 (5.6)
Carotid sinus syndrome	13 (5.4)	2 (2.7)	7 (6.5)	2 (5.4)	2 (11.1)
Atypical	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	1 (5.6)
Orthostatic	117 (48.3)	38 (50.7)	53 (49.5)	12 (32.4)	11 (61.1)
Primary autonomic failure	7 (2.9)	2 (2.7)	3 (2.8)	0 (0.0)	2 (11.1)
Secondary autonomic failure	34 (14.0)	7 (9.3)	14 (13.1)	4 (10.8)	9 (50.0)
Drug induced	55 (22.7)	19 (25.3)	27 (25.2)	7 (18.9)	0 (0.0)
Volume depletion	21 (8.7)	10 (13.3)	9 (8.4)	1 (2.7)	0 (0.0)
Unexplained	31 (12.8)	11 (14.7)	10 (9.3)	6 (16.2)	2 (11.1)

Ungar A et al. J Am Geriatr Soc 2016

FURTHER HIGH-RISK GROUPS

Drugs	Anabolic steroids, analgesics, opioids (codeine), NSAIDs, anticholinergics, anticonvulsivants, antidepressants, antihistamines, antihypertensives (verapamil e clonidine), anti-Parkinsonian, diuretics, antiacids containing calcium or alluminium, cholestyramine.
Neuropathic and myopathic disorders	Amyloidosis, Chagas disease, connective tissue disorders, CNS lesions, autonomic diabetic neuropathy, Hirschprung's disease, multiple sclerosis.
Idiopathic	Paraneoplastic syndromes, Parkinson's disease, dementia, scleroderma, post-viral colon-paresis, intestinal pseudo-obstruction, spinal or ganglion tumor, ischemia.
Electrolytic balance alterations	Hypokalemia, hypercalcemia
Organic intestinal diseases	Obstruction/stenosis: adenoma, cancer, diverticolitis, rectocele, hernia, foreign bodies, faecal impaction, IBD and complications.
	Anorectal abnormalities: anal stenosis or fissures, proctitis, rectocele, haemorrhoids.
Endocrine-metabolic causes	Hypothyroidism, diabetes mellitus, pregnancy and childbirth, dehydration, low fibres intake diet, hyperglycemia

I pazienti provenienti dalle NH/LTC sono spesso dementi o con altre patologie neuro-degenerative, allettati o ipomobili, disidratati (specie in estate), malnutriti, comorbidi ed assumono tanti farmaci (tra cui lassativi): sono i pazienti a più alto rischio di stipsi e fecalomi, la cui presenza va cercata in maniera sistematica.

De Giorgio R et al. BMC Gastroenterol 2015
Salvi F et al. Eur J Emerg Med (submitted)

OUTLINE

- Epidemiologia
- Clinical features
  - Atypical presentations
  - Constipation in high risk groups
  - Drugs
- Complications
- Management & treatment
- Take Home Messages

AGE & ADR

eTable 2. US Population Rates of Emergency Department (ED) Visits for Adverse Drug Events (ADEs) by Patient Age and Year, 2005-2014[a]

Patient age group, y	2005-2006		2007-2008[c]		2009-2010[c]		2011-2012		2013-2014[c]	
	No. of Cases	National Estimate Per 1,000 Individuals (95% CI)[b]	No. of Cases	National Estimate Per 1,000 Individuals (95% CI)[b]	No. of Cases	National Estimate Per 1,000 Individuals (95% CI)[b]	No. of Cases	National Estimate Per 1,000 Individuals (95% CI)[b]	No. of Cases	National Estimate Per 1,000 Individuals (95% CI)[b]
≤5	4,581	4.6 (3.5-5.8)	5,382	5.0 (3.8-6.2)	6,017	5.7 (4.3-7.2)	5,982	6.0 (4.6-7.4)	5,133	5.2 (3.9-6.4)
6-19	2,652	1.2 (0.9-1.4)	3,114	1.3 (1.0-1.6)	3,550	1.5 (1.1-1.8)	3,993	1.8 (1.3-2.2)	3,452	1.5 (1.2-1.8)
20-34	3,669	2.0 (1.6-2.4)	4,639	2.4 (1.9-2.9)	5,272	2.7 (2.1-3.3)	6,032	3.1 (2.4-3.8)	5,638	2.7 (2.1-3.2)
35-49	4,043	2.1 (1.6-2.5)	4,914	2.3 (1.9-2.8)	5,606	2.8 (2.2-3.4)	6,328	3.3 (2.6-4.1)	5,928	3.0 (2.4-3.5)
50-64	3,701	2.5 (1.8-3.1)	5,265	3.0 (2.3-3.7)	6,482	3.4 (2.5-4.2)	7,874	4.3 (3.2-5.4)	8,797	4.3 (3.3-5.3)
≥65	5,152	5.2 (3.2-7.2)	7,956	6.8 (4.7-8.9)	10,160	7.9 (5.5-10.4)	11,845	9.5 (6.8-12.2)	13,636	9.7 (6.6-12.9)
Total	23,798	2.6 (1.9-3.2)	31,271	3.0 (2.4-3.7)	37,088	3.5 (2.7-4.4)	41,994	4.2 (3.2-5.2)	42,585	4.0 (3.1-5.0)

[a] Data are from the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance project, US Centers for Disease Control and Prevention.
[b] Calculated from statistical weighting of cases based on the sample design.
[c] Patient age missing for one case.

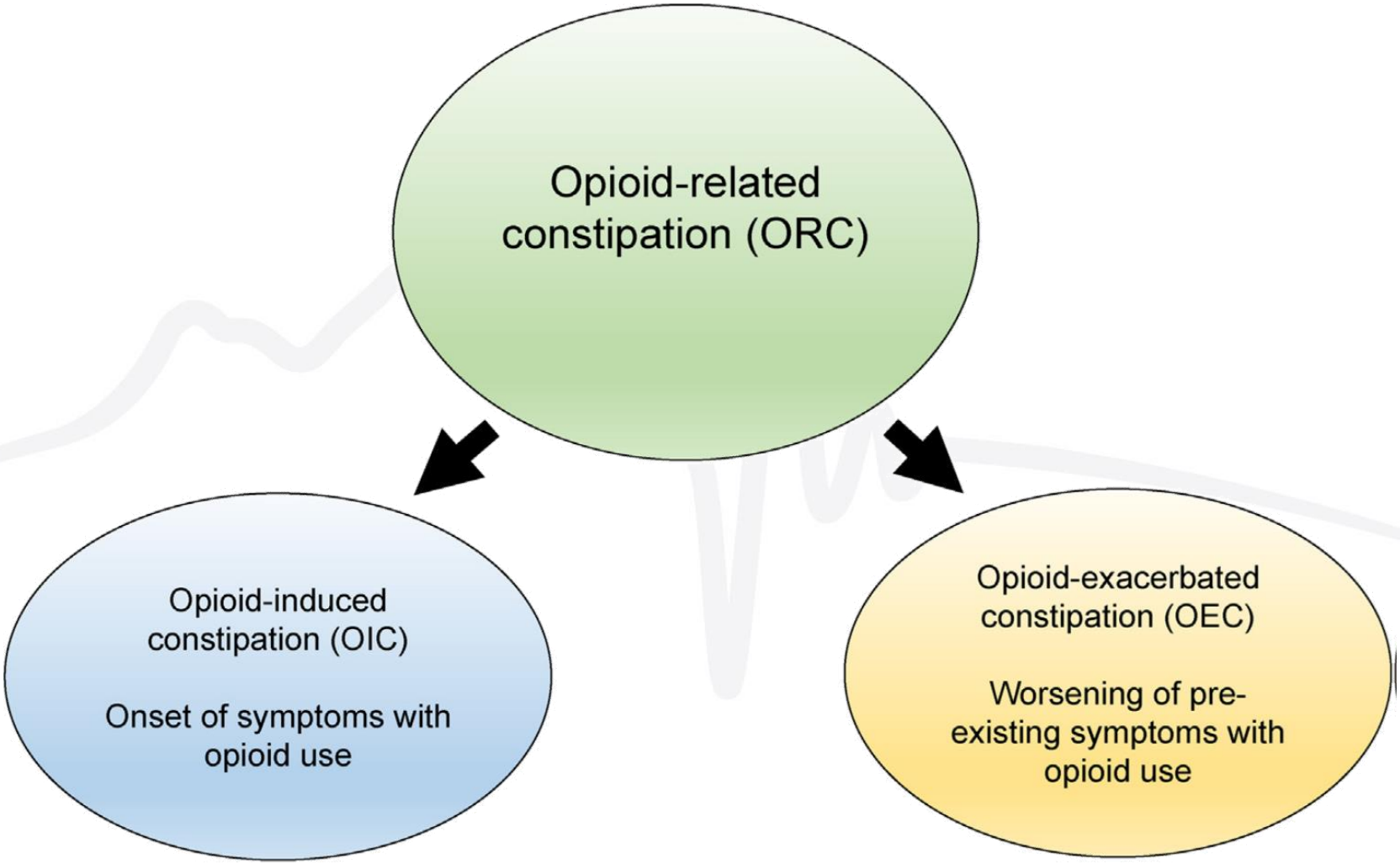
Shehab N et al. JAMA 2016

CONSTIPATION RISK FACTORS

Risk Factor	Case (%) (n = 6441)	Control (%) (n = 7103)	OR	95% CI	PAR (%)
Age 11–24 yr	12	18			
Age 25–49 yr	24	45	0.47	0.41–0.53	
Age 50–74 yr	24	25	0.71	0.62–0.80	
Age ≥75 yr	40	12	2.27	1.97–2.62	
Female gender	67	51	1.41	1.30–1.54	
Diabetes mellitus	5.7	1.7	1.74	1.36–2.21	1.24
Thyroid disease	5.3	1.4	1.64	1.26–2.13	0.89
Pregnancy	12.8	7.4	1.97	1.69–2.31	6.70
Parkinsonism	2.4	0.2	4.34	2.50–7.55	0.66
Multiple sclerosis	0.7	0.1	12.68	4.31–37.32	1.15
Dementia	3.8	0.6	1.68	1.16–2.43	0.41
Opioid analgesics	19.4	4.3	2.44	2.10–2.85	5.83
Diuretics	34.5	9.1	1.82	1.61–2.05	6.94
Iron supplements	20.5	6.1	1.98	1.71–2.28	5.64
Antipsychotics	10.1	2.1	1.87	1.51–2.32	1.79
Antidepressants	30.7	9.8	2.05	1.83–2.30	9.33
Antispasmodics	21.0	5.6	2.88	2.52–3.29	9.53
Antihistamines	26.5	13.3	1.86	1.68–2.06	10.26
β-blockers	16.3	7.2	1.24	1.08–1.42	1.70
Calcium supplements	2.3	0.3	2.40	1.46–3.96	0.42
Aluminium antacid	15.9	4.3	1.90	1.63–2.21	3.73
Anticonvulsants	5.9	1.4	2.20	1.68–2.86	1.65

Talley NJ et al. Am J Gastroenterol 2003

OPIOID-RELATED CONSTIPATION



Liu JJ, Brenner DM et al. Gastroenterol Clin N Am 2022

Association between Anticholinergic Burden and Constipation: A Systematic Review

Abstract: The association between anticholinergic burden and constipation is not well defined and documented; for this reason, a systematic review was carried out in five databases (Medline, Embase, Cochrane Central Register of Controlled Trials, CINAHL, and Scopus), including studies assessing the correlation between anticholinergic burden, and constipation between January 2006 and December 2020. Data extraction was conducted independently by two researchers. Abstracts and titles were reviewed to determine eligibility for review with eligible articles read in full. From 2507 identified articles, 11 were selected for this review: six cross-sectional studies, four retrospective cohort studies, and a post hoc analysis of a randomized clinical trial. Overall, nine studies reported at least one statistical association between anticholinergic burden and constipation, finding 13 positive results out of 24 association measurements. A total of 211,921 patients were studied. The association between constipation and anticholinergic burden could be demonstrated in studies including 207,795 patients. Most studies were not designed to find differences in constipation prevalence and did not adjust the results by confounding factors. Our findings suggest that a correlation between anticholinergic burden and constipation exists. Higher quality-evidence studies are needed, including analysis that considers confounding factors, such as other non-pharmacological causes of constipation.

Rodriguez-Ramallo H et al. Healthcare 2021

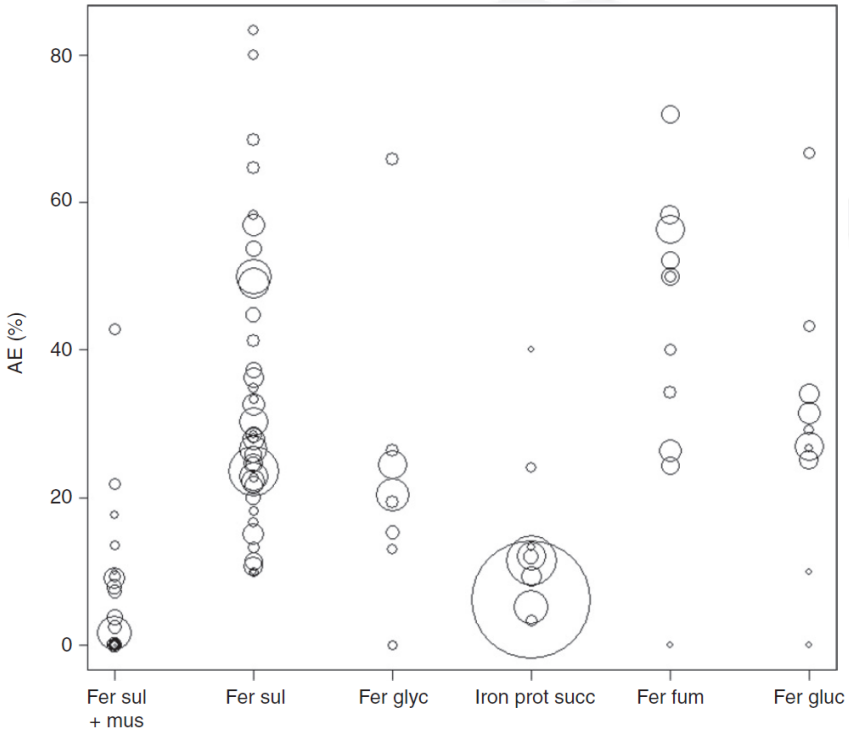
CONSTIPATION & DIURETICS

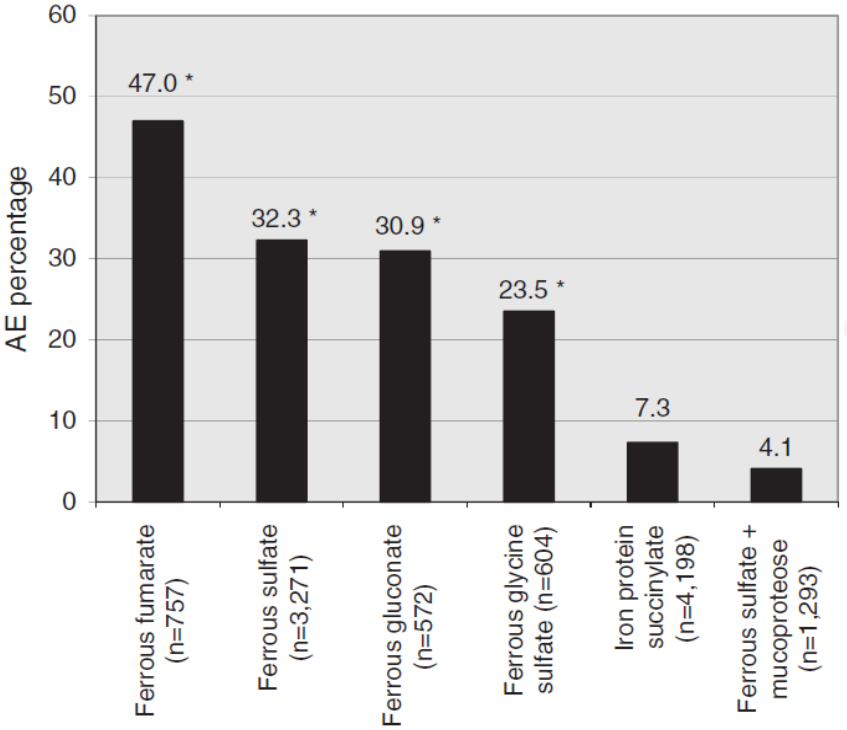
	P	OR adjusted*
Number of drugs	0,03	1.26 (1.02–1.56)
Functional Status (Barthel score)	0.02	0.98 (0.97–0.99)
Modified Ward index	<0.001	1.14 (1.02–1.22)
Uncontrolled constipation	<0.001	11.84 (3.87–36.24)
ASA	0.01	3.12 (1.24–7.87)
Diuretics		
No		
Regular	0.08	2.48 (0.90–6.81)
Occasional	<0.001	18.94 (3.69–97.15)

Rey E et al. PLoS One 2014

IRON SUPPLEMENTS: TOLERABILITY

Oral iron supplement	Studies (*n*)	Total patients (*n*)	Weighted mean dose (mg iron/day)	Total AEs registered (*n*)	Total GAEs registered (*n*)*
Iron protein succinylate	10	4198	88	308	295
Ferrous sulfate	40	3271	120	1056	869
Ferrous sulfate plus mucoproteose	32	1293	105	53	48
Ferrous fumarate	11	757	105	356	298
Ferrous glycine sulfate	8	604	121	142	112
Ferrous gluconate	10	572	175	177	171



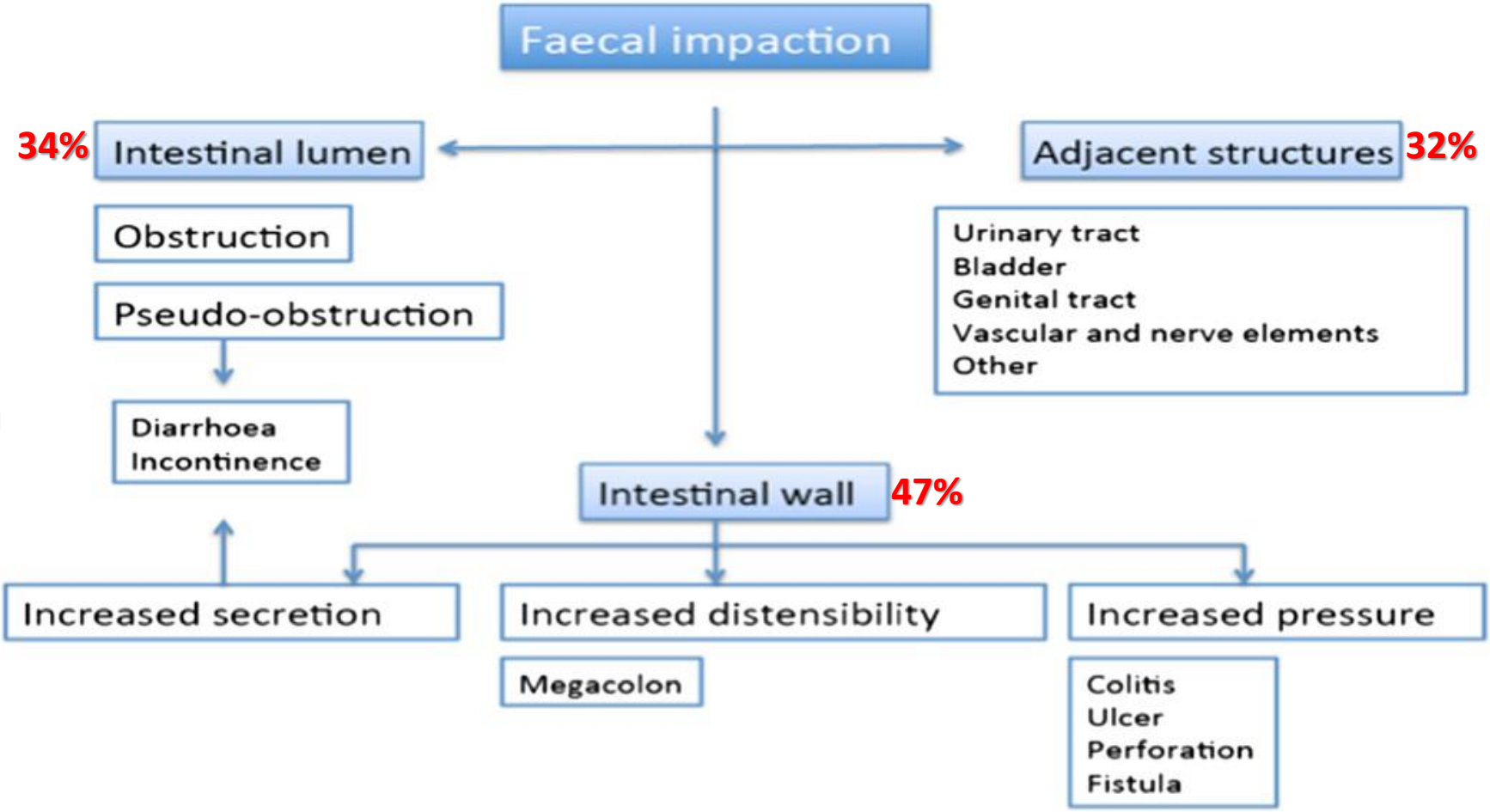


Cancelo-Hidalgo MJ et al. Curr Med Res Opin 2013

OUTLINE

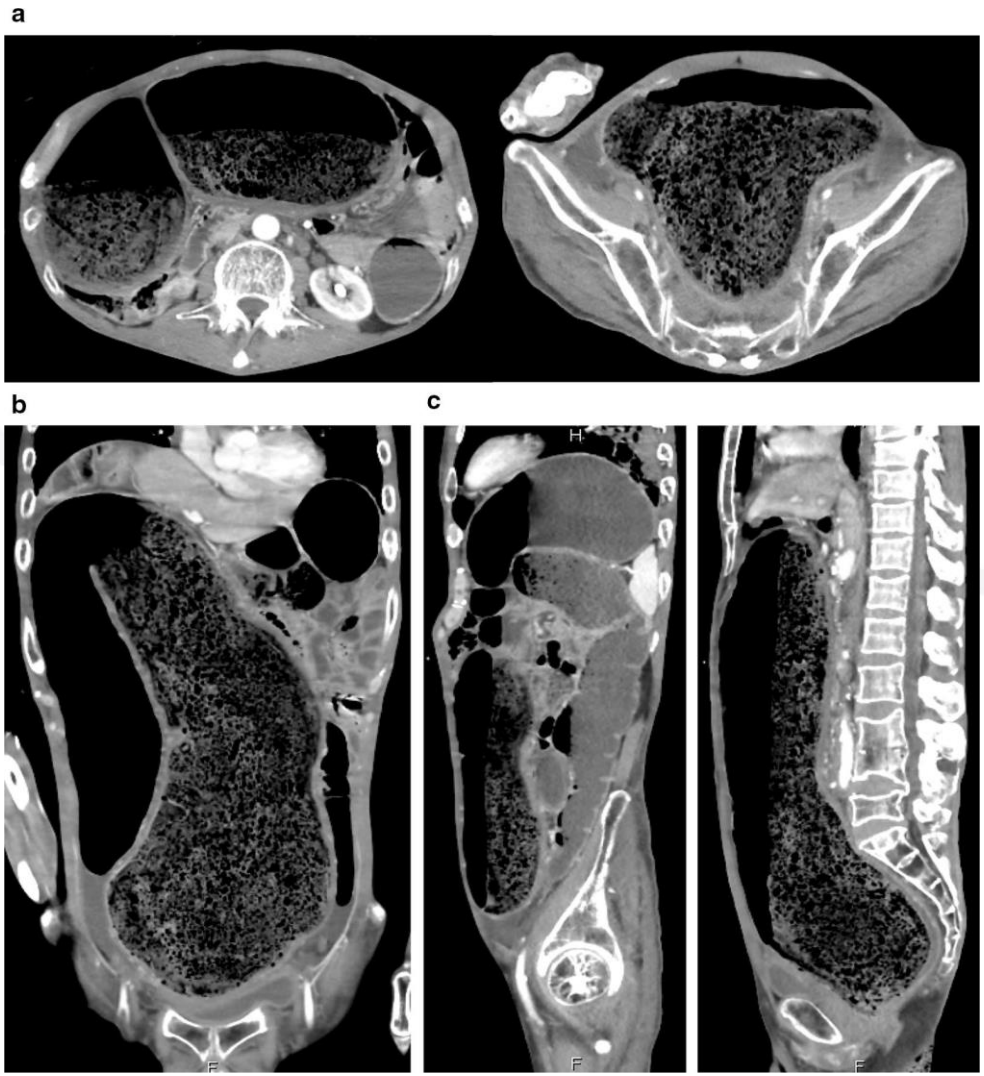
- Epidemiologia
- Clinical features
  - Atypical presentations
  - High risk groups
  - Drugs
- Complications
- Management & treatment
- Take Home Messages

COMPLICATIONS



Serrano-Falcón B et al. BMC Geriatr 2016

STIPSI: IMAGING



Usuda D et al. J Med Case Reports 2020

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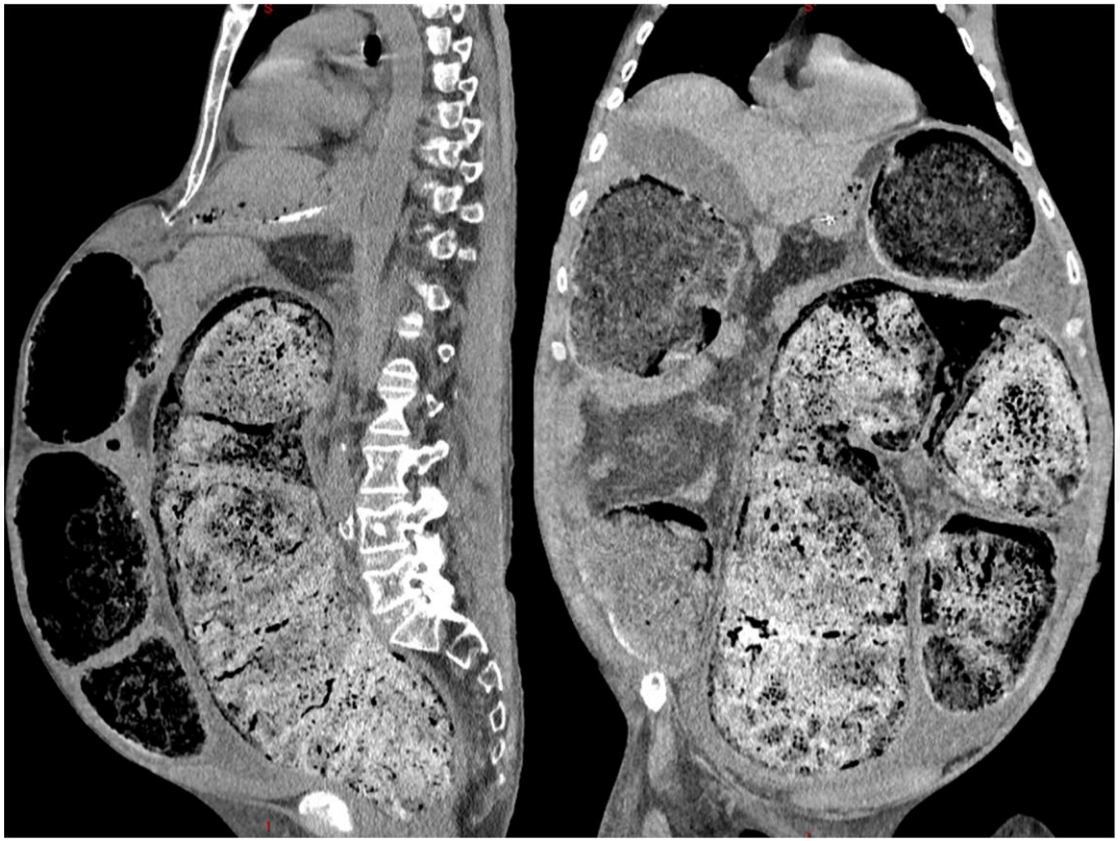
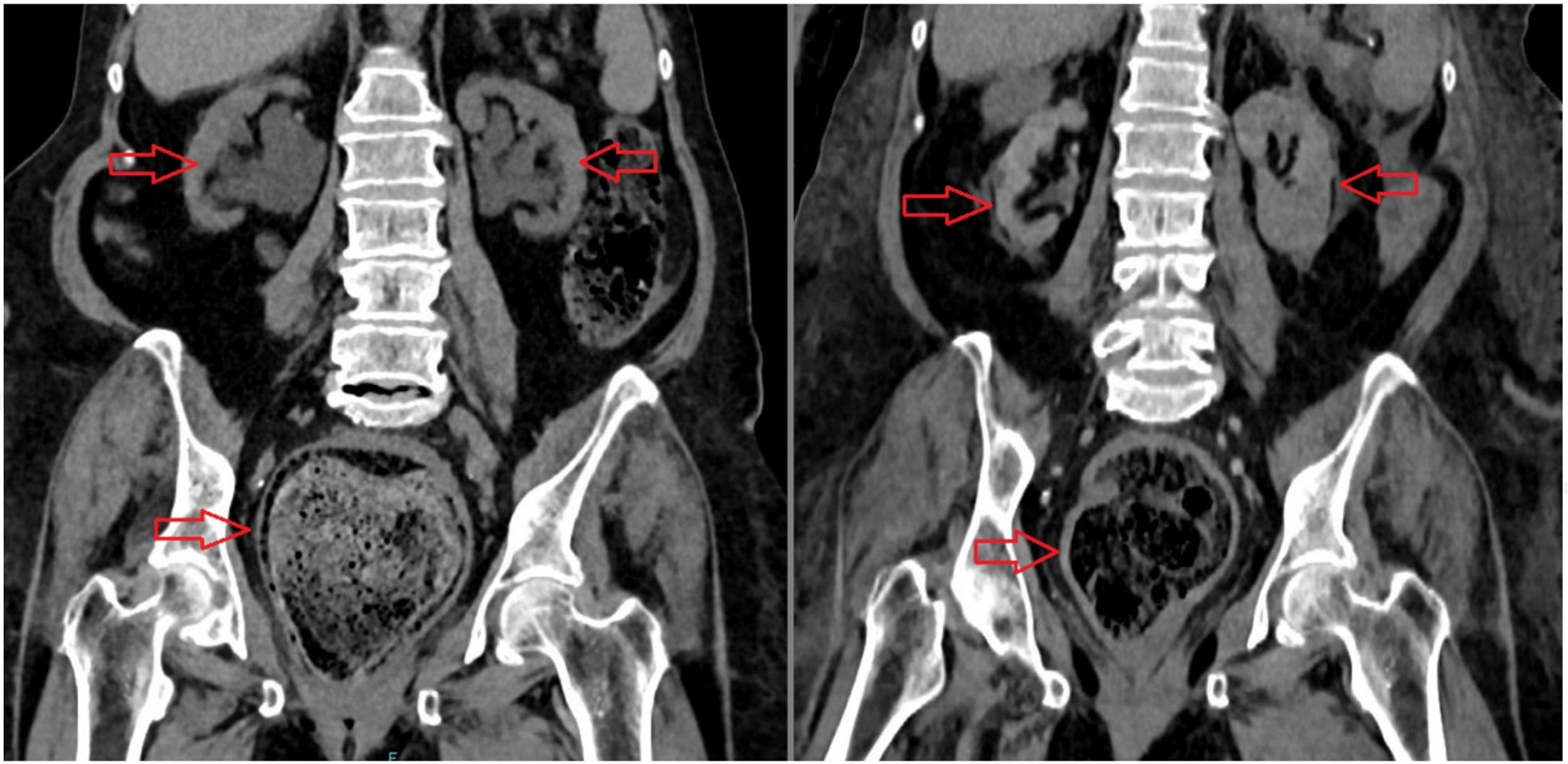


Logre E et al. Intern J Emerg Med 2020

FI & URINARY RETENTION



Ozlu DN et al. Cureus 2020

OUTLINE

- Epidemiologia
- Clinical features
  - Atypical presentations
  - High risk groups
  - Drugs
- Complications
- Management & treatment
- Take Home Messages

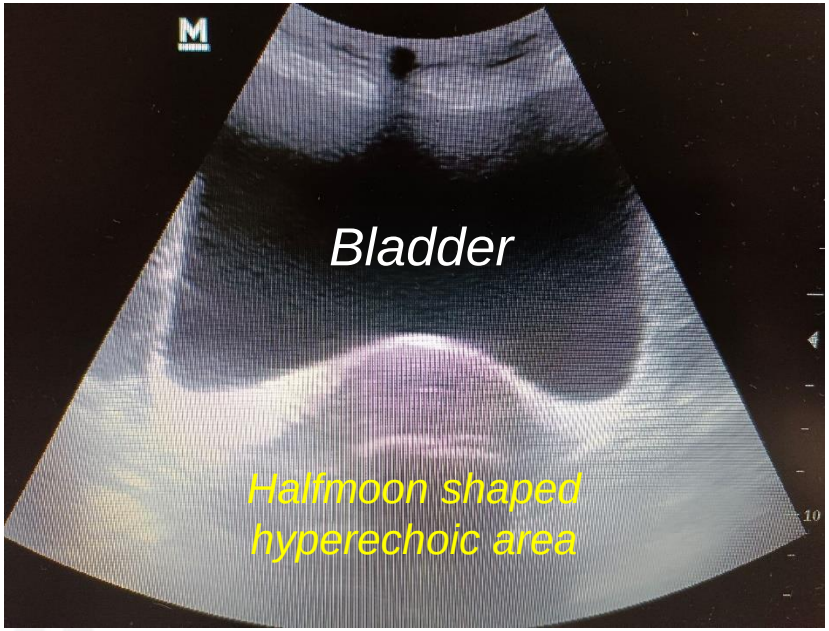
MANAGEMENT

- Full Medical & Pharmacological History
- Physical examination (**with DRE**)
  - Colic cord
  - Pasty abdomen
- Labs (CBC, BUN/crea, full electrolytes, TSH reflex)
- Plan abdomen RX
- TC (with or without mdc)
- Bedside US

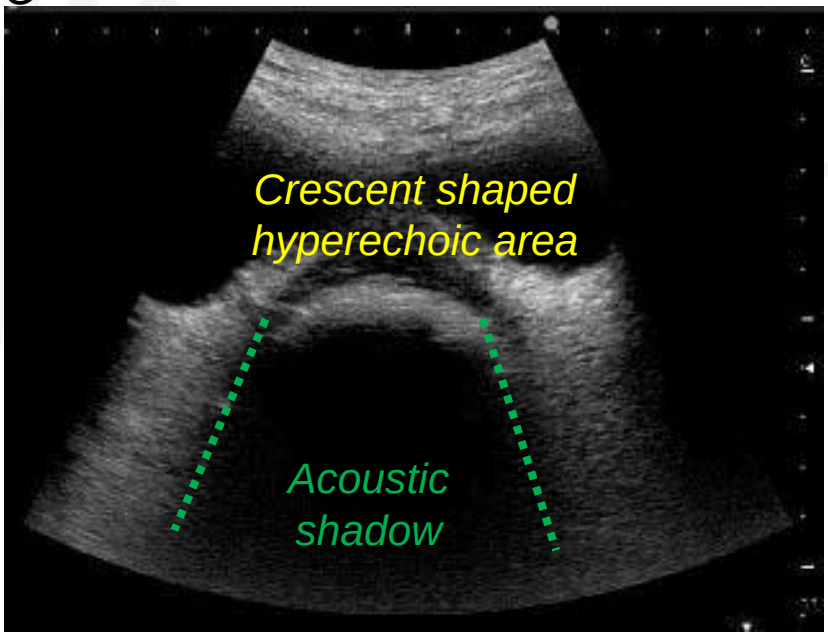
A


D
SUPINO

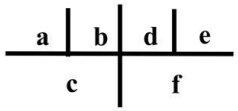
B

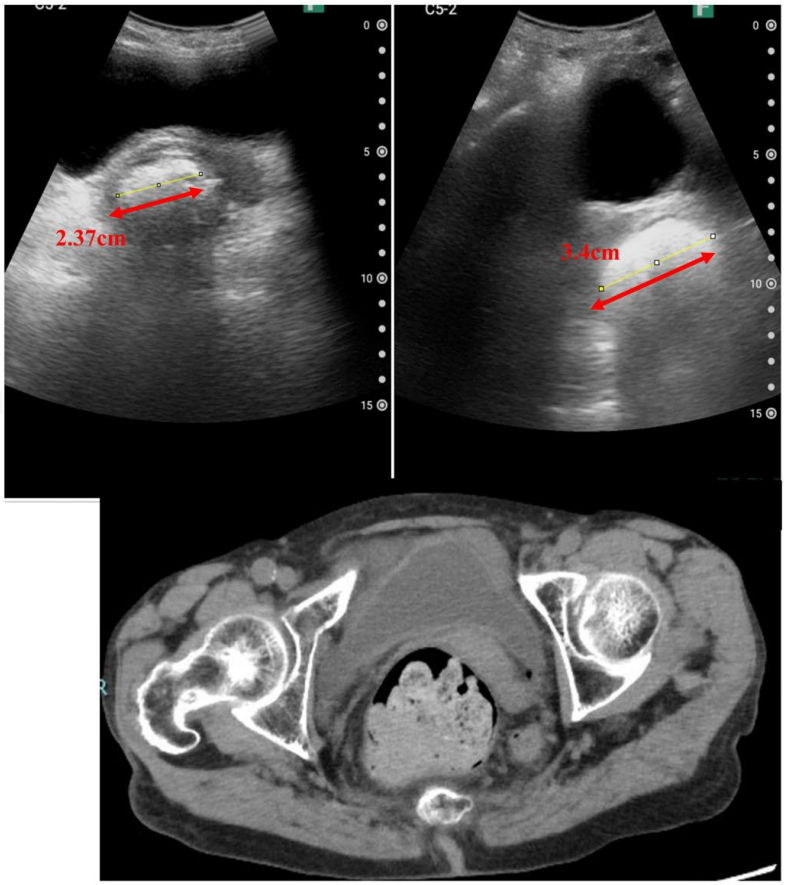

M
Bladder
Halfmoon shaped
hyperechoic area

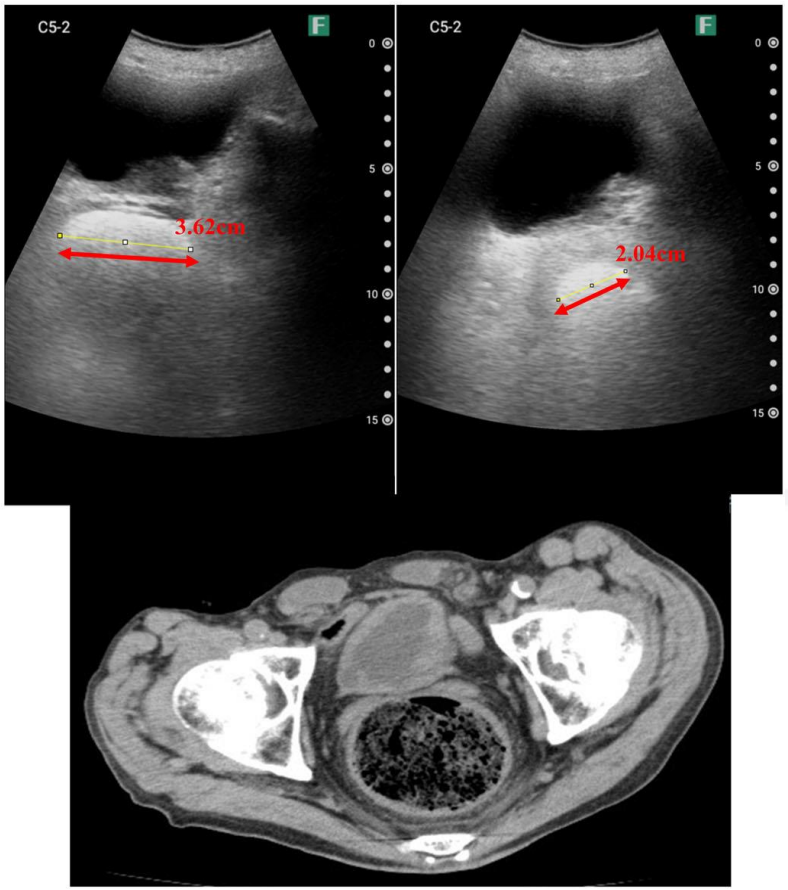
C


Crescent shaped
hyperechoic area
Acoustic
shadow

US Vs. CT

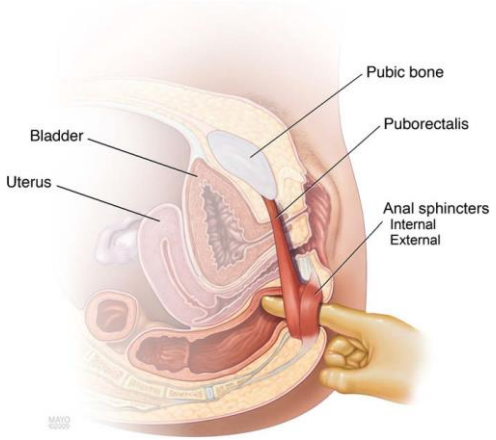






Takeuchi S et al. Geriatr Gerontol Int 2023

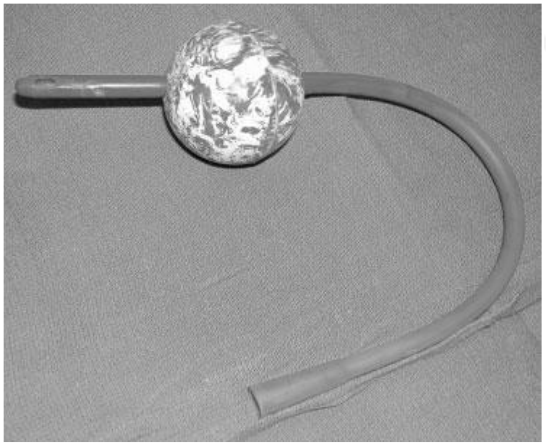
THERAPEUTIC APPROACH



FECAL IMPACTION TREATMENT

ENSURE NO CONTRAINDICATIONS TO DISIMPACTION
- Perforation
- Massive hemorrhage

DISIMPACTION
- Manual
  - Can perform in conjunction with local anesthetic with abdominal massage if fecaloma large
- Endoscopic using snare wire

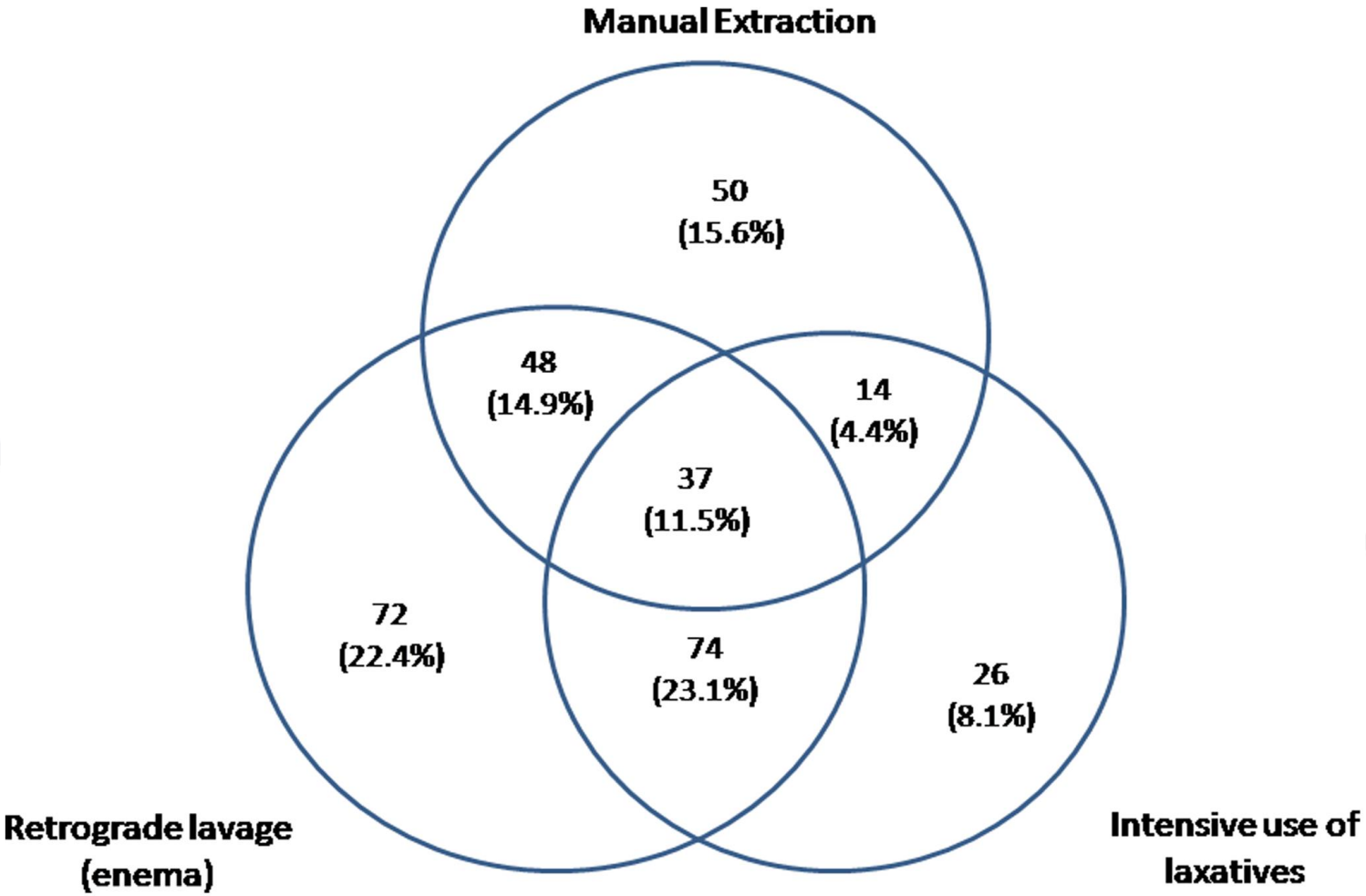


COLONIC EVACUATION
- Enema, suppository or rectal lavage
- PEG+E solution orally or via NGT

MAINTENANCE
- PEG+E oral
- Optimize lifestyle
- Avoid narcotics

Hussain ZH et al. Curr Gastroenterol Rep 2014

THERAPEUTIC APPROACH



Rey E et al. PLoS One 2014

GASTROGRAFIN™

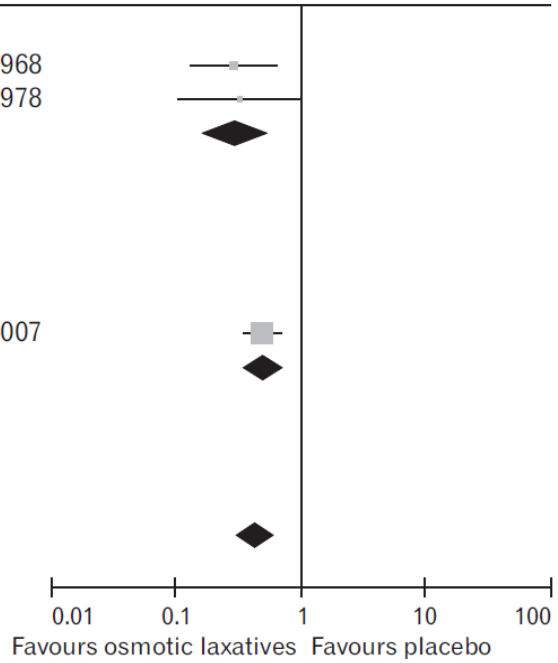
Results: A total of 124 patients were eligible, but only 83 were enrolled to this trial (mean age: 44 ± 15.8 years). Forty-two patients received enemas, and 41 patients received gastrografin, with six dropouts in each group. Successful disimpaction was achieved with enemas (69.44%) and gastrografin (88.57%; $P = 0.034$), mean duration of impaction was strikingly different between the two groups (67.13 versus 31.67, respectively; $P < 0.01$). Constipation severity and symptom assessment were significantly reduced in the gastrografin group.

Conclusion: Gastrografin given through nasointestinal tube was more effective than enema in the treatment of FI inducing colon obstruction. Gastrografin might be taken into consideration as an effective and safe therapeutic option for FI.

Gu L et al. ANZ J Surg 2019

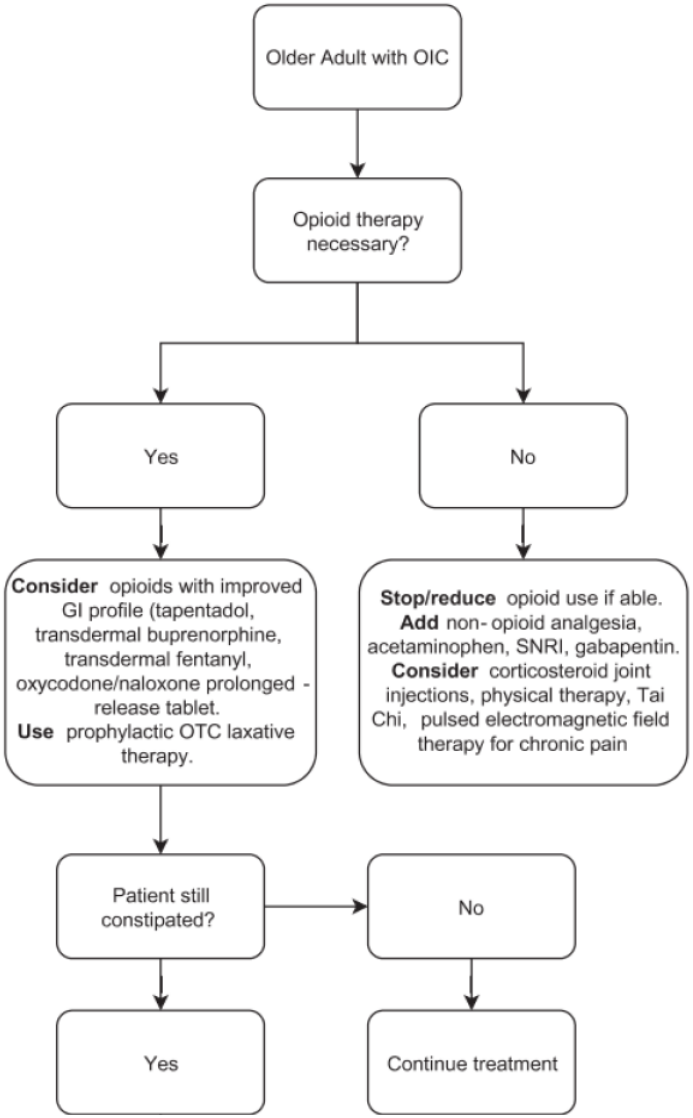
MAINTEINANCE THERAPY

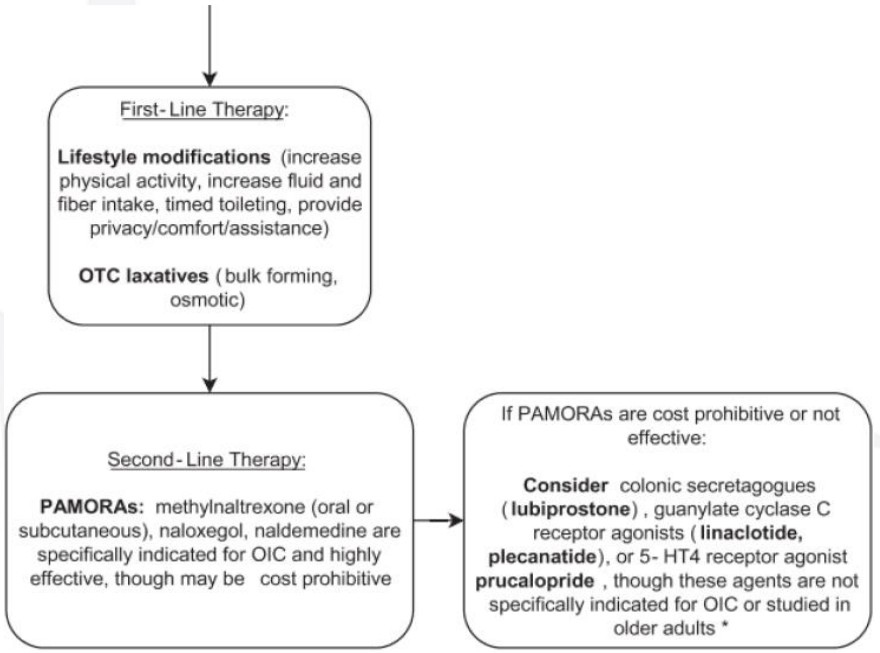
Study or subgroup	Osmotic laxatives Events	Total	Placebo Events	Total	Weight	Risk ratio M-H, random, 95% CI	Year
1.1.1. Lactulose							
Wesselius 1968	6	31	14	21	18.8%	0.29 [0.13, 0.63]	1968
Sanders 1978	3	19	11	23	9.5%	0.33 [0.11, 1.01]	1978
Subtotal (95% CI)		**50**		**44**	**28.2%**	**0.30 [0.16, 0.57]**	
Total events	9		25				
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.03$, df = 1 ($P = 0.85$); $I^2 = 0\%$							
Test for overall effect: Z = 3.66 ($P = 0.0003$)							
1.1.2 PEG							
Dipalma 2007	22	50	22	25	71.8%	0.50 [0.35, 0.71]	2007
Subtotal (95% CI)		**50**		**25**	**71.8%**	**0.50 [0.35, 0.71]**	
Total events	22		22				
Heterogeneity: Not applicable							
Test for overall effect: Z = 3.94 ($P < 0.0001$)							
Total (95% CI)		**100**		**69**	**100.0%**	**0.43 [0.31, 0.62]**	
Total events	31		47				
Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 2.22$, df = 2 ($P = 0.33$); $I^2 = 10\%$							
Test for overall effect: Z = 4.64 ($P < 0.00001$)							
Test for subgroup differences: $Chi^2 = 1.83$, df = 1 ($P = 0.18$), $I^2 = 45.3\%$							



Kang SJ et al. J Neurogastroenterol Motil 2021

ORC: TREATMENT FLOW CHART

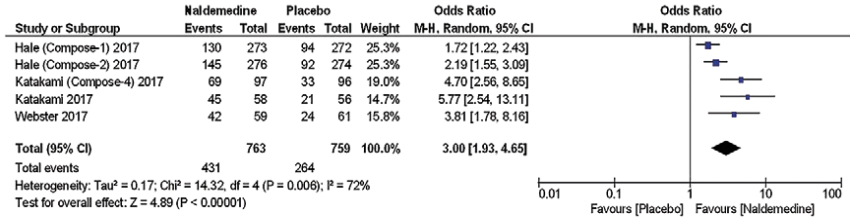




Horrigan J et al. J Clin Gastroenterol 2023

NADELMEDINE FOR OIC

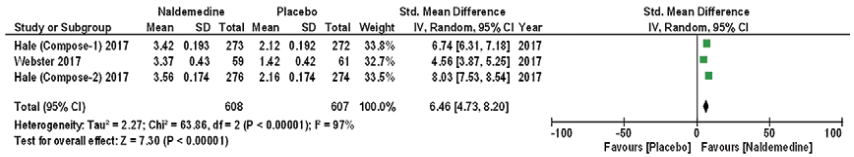
SBM responders



Study or Subgroup	Naldemedine Events	Total	Placebo Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Hale (Compose-1) 2017	130	273	94	272	25.3%	1.72 [1.22, 2.43]
Hale (Compose-2) 2017	145	276	92	274	25.3%	2.19 [1.55, 3.09]
Katakami (Compose-4) 2017	69	97	33	96	19.0%	4.70 [2.56, 8.65]
Katakami 2017	45	58	21	56	14.7%	5.77 [2.54, 13.11]
Webster 2017	42	59	24	61	15.8%	3.81 [1.78, 8.16]
Total (95% CI)		763		759	100.0%	**3.00 [1.93, 4.65]**
Total events	431		264			

Heterogeneity: Tau² = 0.17; Chi² = 14.32, df = 4 (P = 0.006); I² = 72%
Test for overall effect: Z = 4.89 (P < 0.00001)

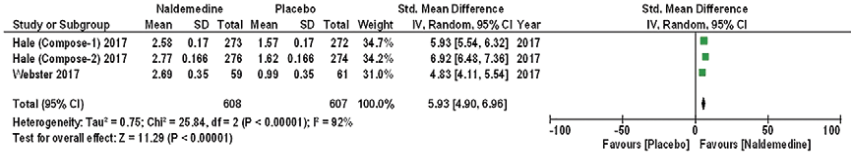
Change in SBM frequency from baseline



Study or Subgroup	Naldemedine Mean	SD	Total	Placebo Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Year
Hale (Compose-1) 2017	3.42	0.193	273	2.12	0.192	272	33.8%	6.74 [6.31, 7.18]	2017
Webster 2017	3.37	0.43	59	1.42	0.42	61	32.7%	4.56 [3.87, 5.25]	2017
Hale (Compose-2) 2017	3.56	0.174	276	2.16	0.174	274	33.5%	8.03 [7.53, 8.54]	2017
Total (95% CI)			608			607	100.0%	6.46 [4.73, 8.20]	

Heterogeneity: Tau² = 2.27; Chi² = 63.86, df = 2 (P < 0.00001); I² = 97%
Test for overall effect: Z = 7.30 (P < 0.00001)

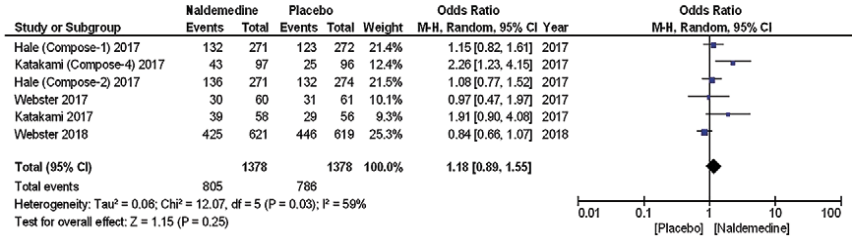
Change in CSBM frequency from baseline



Study or Subgroup	Naldemedine Mean	SD	Total	Placebo Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI	Year
Hale (Compose-1) 2017	2.58	0.17	273	1.57	0.17	272	34.7%	5.93 [5.54, 6.32]	2017
Hale (Compose-2) 2017	2.77	0.166	276	1.62	0.166	274	34.2%	6.92 [6.48, 7.36]	2017
Webster 2017	2.69	0.35	59	0.99	0.35	61	31.0%	4.83 [4.11, 5.54]	2017
Total (95% CI)			608			607	100.0%	5.93 [4.90, 6.96]	

Heterogeneity: Tau² = 0.75; Chi² = 25.84, df = 2 (P < 0.00001); I² = 92%
Test for overall effect: Z = 11.29 (P < 0.00001)

Treatment-emergent adverse events:



Study or Subgroup	Naldemedine Events	Total	Placebo Events	Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Hale (Compose-1) 2017	132	271	123	272	21.4%	1.15 [0.82, 1.61]	2017
Katakami (Compose-4) 2017	43	97	25	96	12.4%	2.26 [1.23, 4.15]	2017
Hale (Compose-2) 2017	136	271	132	274	21.5%	1.08 [0.77, 1.52]	2017
Webster 2017	30	60	31	61	10.1%	0.97 [0.47, 1.97]	2017
Katakami 2017	39	58	29	56	9.3%	1.91 [0.90, 4.08]	2017
Webster 2018	425	621	446	619	25.3%	0.84 [0.66, 1.07]	2018
Total (95% CI)		1378		1378	100.0%	**1.18 [0.89, 1.55]**	
Total events	805		786				

Heterogeneity: Tau² = 0.06; Chi² = 12.07, df = 5 (P = 0.03); I² = 59%
Test for overall effect: Z = 1.15 (P = 0.25)

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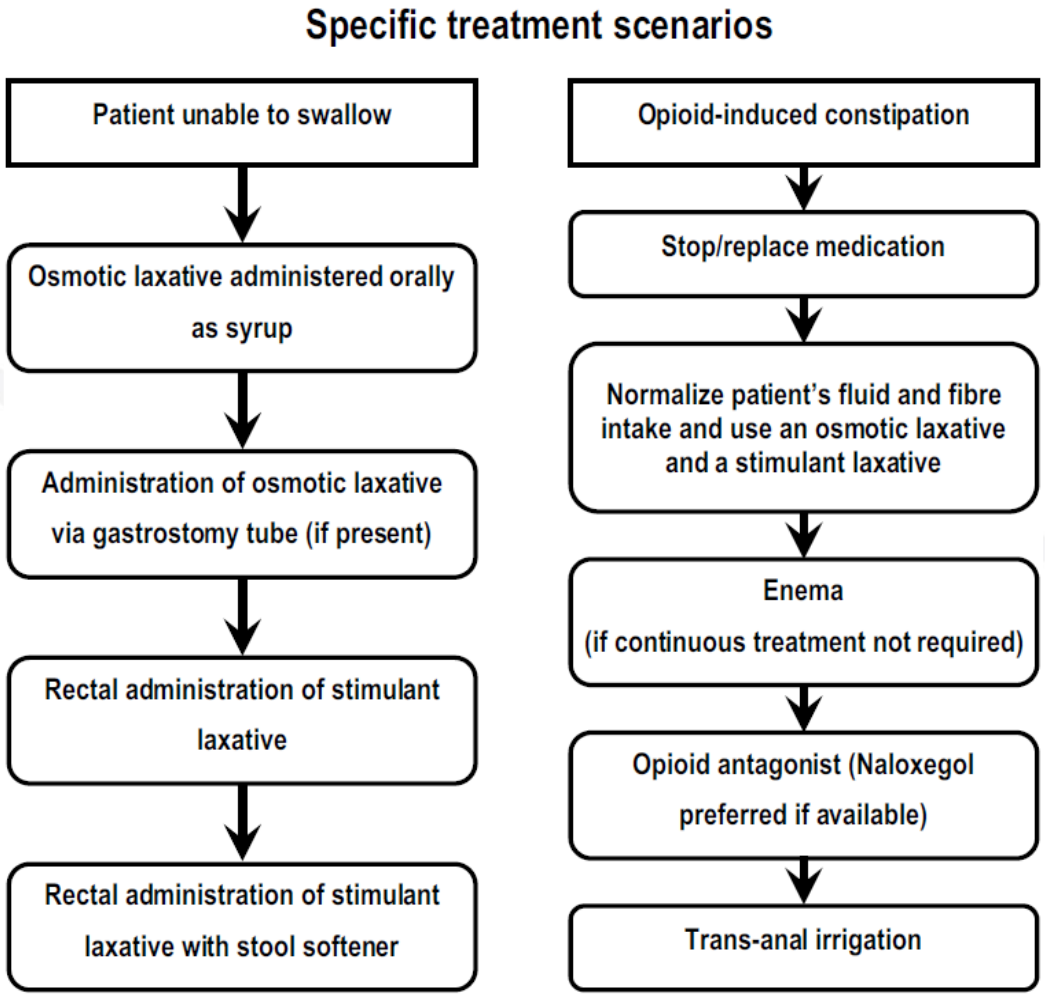
THERAPEUTIC PITTFALLS



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OUTLINE

- Epidemiologia
- Clinical features
  - Atypical presentations
  - High risk groups
  - Drugs
- Complications
- Management & treatment
- Take Home Messages

TAKE HOME MESSAGES

- Constipation is frequent and a common reason to present to the ED in older adults
- Its presentation is often atypical
- A patient-centered approach is warranted as well as an increased clinical attention on this medical problem
- It shares several possible biological mechanisms and background with frailty, thus it may be considered a (new) geriatric syndrome
- Early diagnosis and appropriate treatment can improve prognosis, avoid complications and prevent recurrence, thus finally leading to better quality of life, reduced morbidity and health care resource utilization