



財團法人

佛教慈濟綜合醫院臺北分院

BUDDHIST TZU CHI GENERAL HOSPITAL, TAIPEI BRANCH

膀胱過動症 (Overactive bladder)

泌尿科 吳書雨醫師





財團法人

佛教慈濟綜合醫院臺北分院

BUDDHIST TZU CHI GENERAL HOSPITAL, TAIPEI BRANCH

Outline

- Definition and terminology
- Prevalence
- Pathophysiology
- Diagnosis
- Treatments





Definition & Terminology

- Nocturia
 - Walking to pass urine during the main sleep period
 - The first nocturia episode must be preceded by sleep
 - Nocturia once was thought to be normal
- Nocturnal polyuria
 - More than 33% of the total daily urine output occurs at night (or sleep)
- Frequency
 - Average voiding times: 8/day
 - Many times in a short time



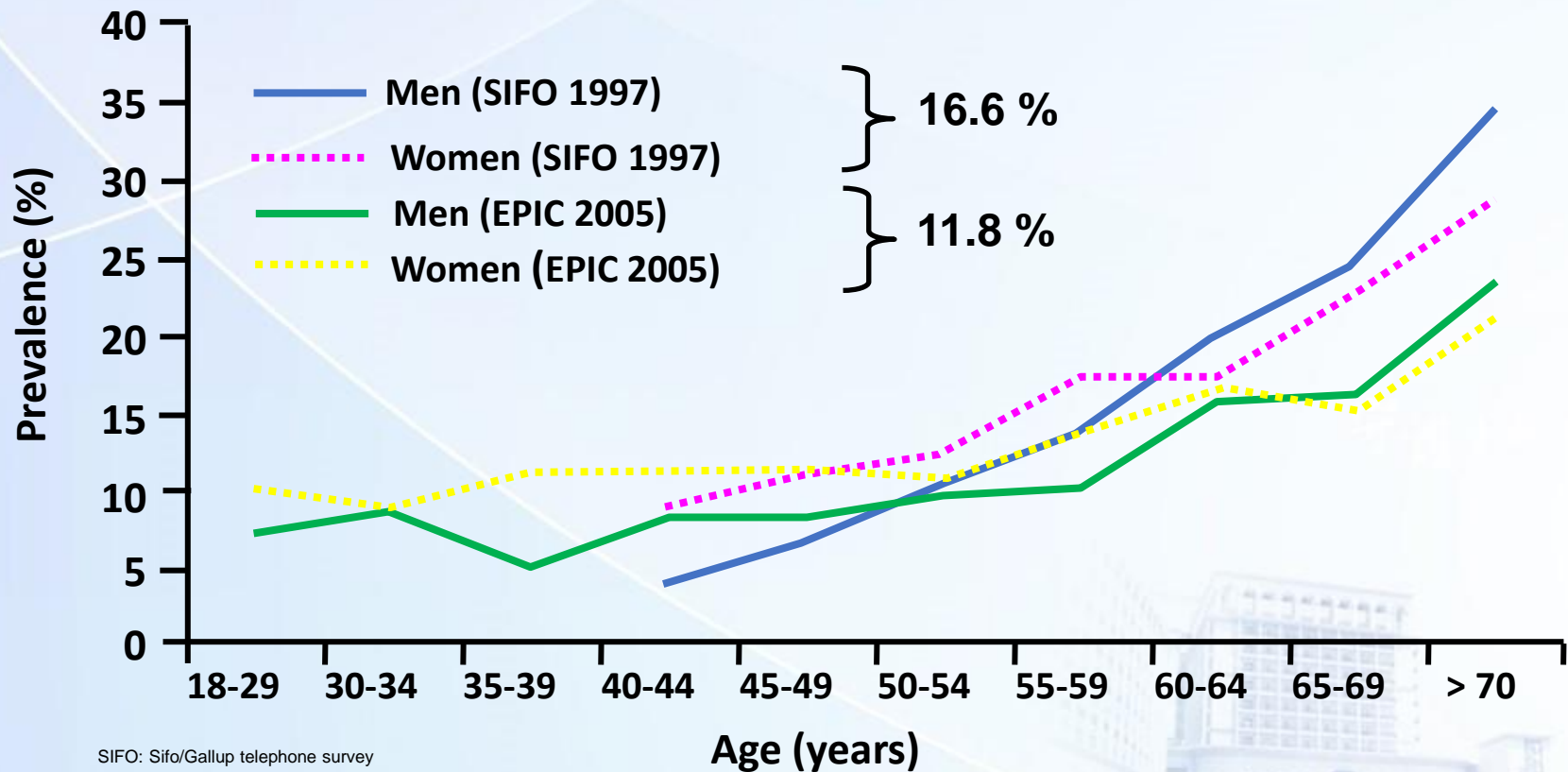


Definition & Terminology

- Overactive bladder
 - A symptom syndrome
 - Urinary **urgency**, with or without urge incontinence, usually accompanied by frequency and nocturia
 - **No** signs of other pathology or **infection**
- **Urgency**
 - The complaint of a **sudden compelling desire to pass urine**, which is difficult to defer
- Urge urinary incontinence
 - The complaint of involuntary loss of urine accompanied by or immediately preceding by urgency



Prevalence



SIFO: Sifo/Gallup telephone survey

* N = 16,776 interviews (6 European countries)

† N = 19,165 interviews (4 European countries and Canada)



Prevalence

- Up to 100 million worldwide
 - 16.6% of adult population in US
 - OAB dry: 13.6% men, 7.6% women
 - OAB wet: 2.4% men, 9.3% women
 - <40% seek treatment
- In Taiwan
 - 16.9% of adult population
 - 30~79 y/o: 18.2%
 - OAB dry: 13.7%
 - OAB wet: 4.5%





Impact of incontinence

- Quality of life
 - Associated with depression and anxiety, work impairment, and social isolation
- Sexual dysfunction
 - 30% (fear of) coital incontinence
- Morbidity
 - Perineal infections
 - Falls and fractures
- Caregiver burden
 - 6-10% of nursing home admissions





Pathophysiology

- Myogenic
 - Alterations in structural and functional properties of the detrusor muscle
 - Partial denervation of the detrusor muscle
 - Supersensitivity to acetylcholine (ACh)
 - Abnormal spontaneous mechanical activity
- Neurogenic
 - Increased afferent activity
 - Decreased central inhibitory control
 - Increased detrusor sensitivity to motor input

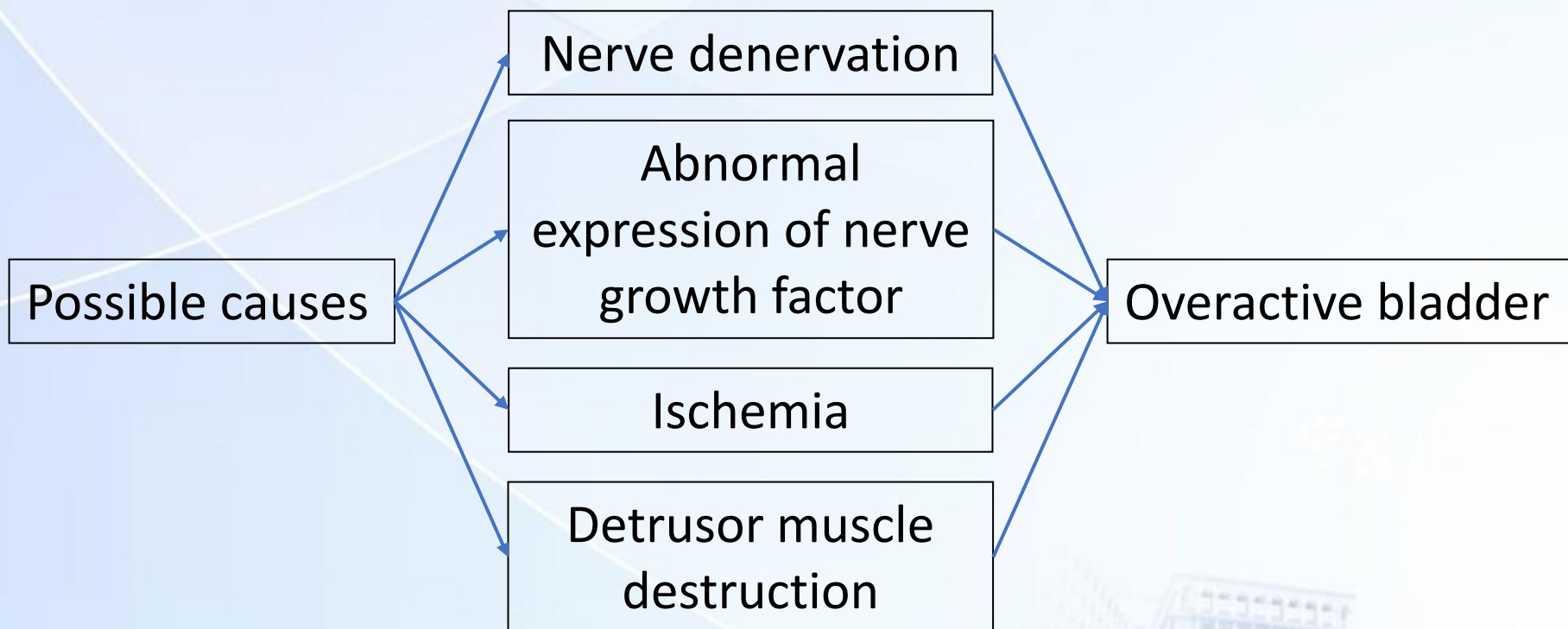


Pathophysiology

- Possible causes
 - Aging
 - Idiopathic
 - Cerebrovascular disease
 - Stroke, Alzheimer disease, multi-infarct or other dementias, Parkinson disease, or multiple sclerosis
 - Spinal cord injury or spine surgery
 - Metabolic, degenerative, or neurogenic diseases
 - Disorders of the PFM(POP, fecal incontinence)
 - Abdominal or pelvic operation
 - Bladder outlet obstruction
 - Depression or anxiety



Pathophysiology

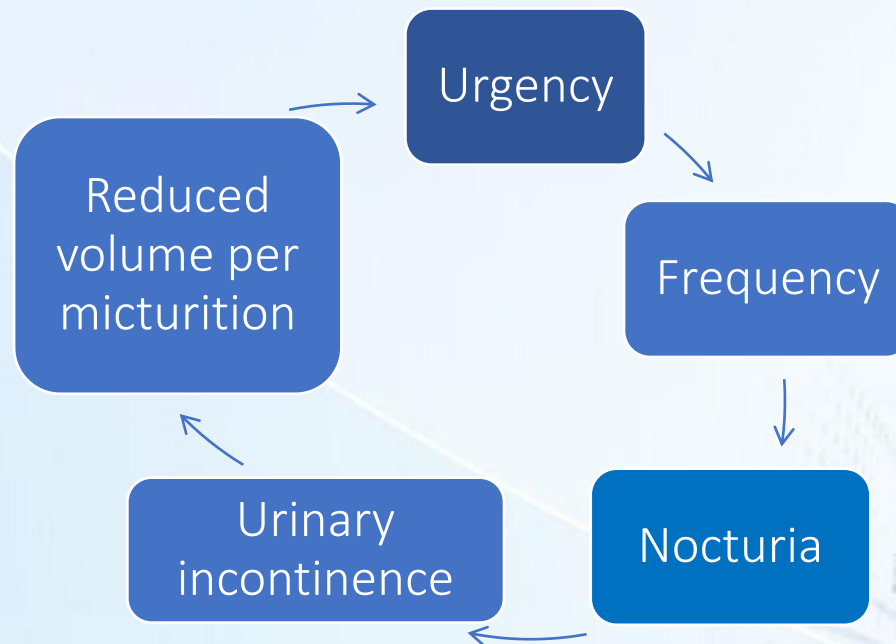




Diagnosis

- Symptoms

- Urinary urgency, with or without urge incontinence, usually accompanied by frequency and nocturia





OABSS

以下症狀大約出現的頻率為何？請選出一個與最近幾周內您的狀態最接近的選項

您早上起床到睡前為止 大約要小便幾次？		您晚上就寢到早上起床為止 大約要醒來小便幾次？		您多長有突然想小便 且感覺難以延後 (感覺憋不住)		您多常有因尿急難以延後 (憋不住)而漏尿	
	分數		分數		分數		分數
7次以下	0	無	0	無	0	無	0
8-14次	1	1次	1	每週少於1次	1	每週少於1次	1
15次以上	2	2次	2	每週1次以上	2	每週1次以上	2
		3次以上	3	每天1次左右	3	每天1次左右	3
				每天2-4次	4	每天2-4次	4
				每天5次以上	5	每天5次以上	5

分數 5 分或 5 分以下

輕度膀胱過動

分數 6-11 分

中度膀胱過動

分數 12 或 12 分以上

較嚴重膀胱過動

總分 _____



Treatments

- First line
 - Behavioral therapies (Standard)
 - Above may be combined with pharmacotherapy (Recommendation)
- Second line
 - Oral antimuscarinics (Standard)
 - β -3 agonist (Standard)
 - Extended release should be preferentially offered (Recommendation)
 - Transdermal oxybutynin



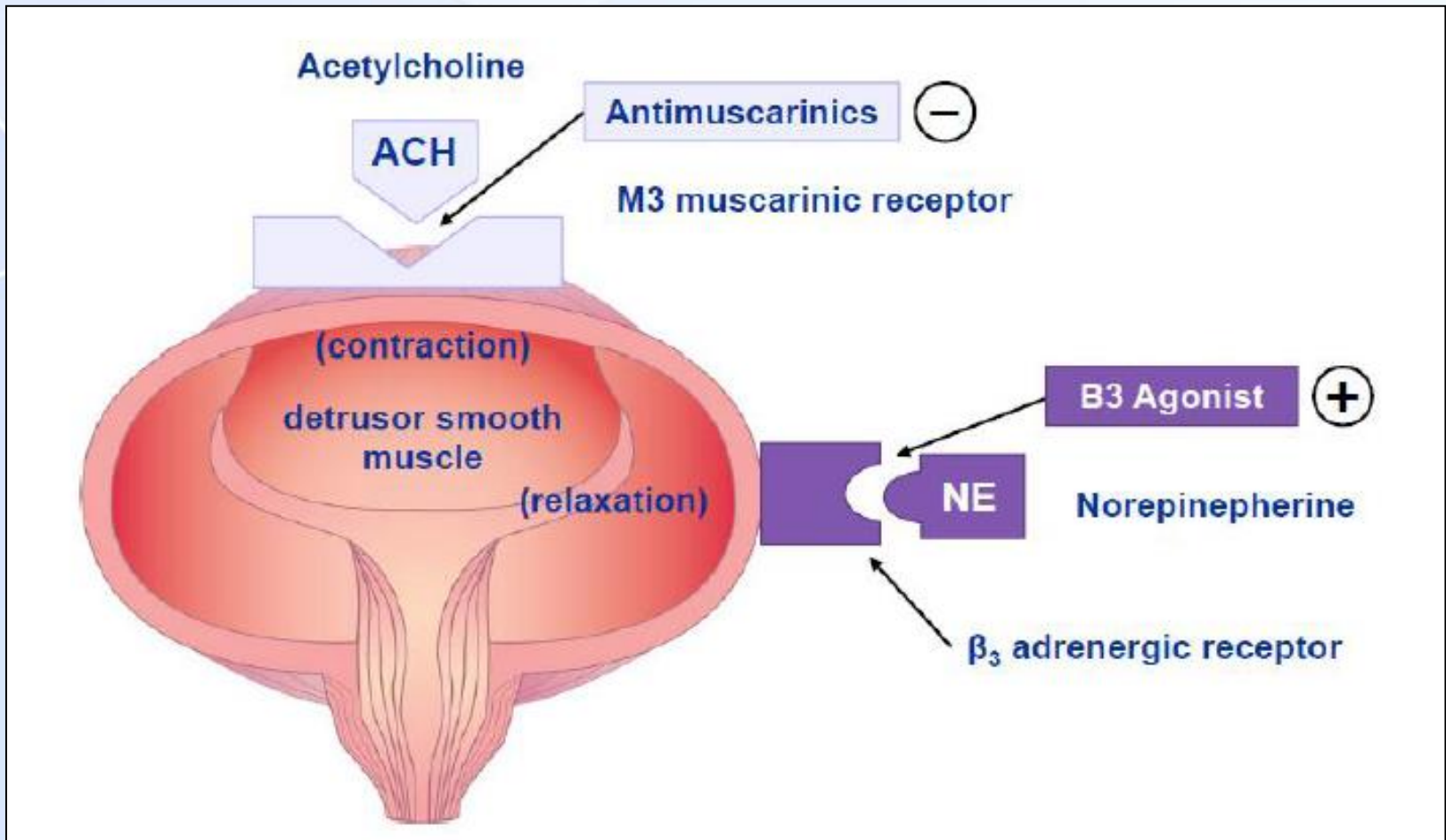


Treatments

- Third line
 - OnabotulinumtoxinA (Standard)
 - Sacral neuromodulation (Recommendation)
 - Percutaneous Tibial Nerve Stimulation (PTNS) (Recommendation)
- Additional treatments
 - Indwelling catheters as last resort (Expert opinion)
 - Augmentation cystoplasty/diversion (Expert opinion)
 - Severe, refractory complicated cases only



Neurogenic Innervation and Control of Bladder Musculature





OAB Medications in Taiwan

- Anticholinergic agents
 - 1974- Trospium
 - 1975- Oxybutynin IR (Ditropan)
 - 1983- Atropine sulfate, Propantheline (Grade B)
 - 1983- **Propiverine**
 - 1996- **Tolterodine (Detrusitol)**
 - 2006- **Solifenacin (Vesicare)**
 - 2011- **Oxybutynin ER (Oxbu)**
- β -3 adrenergic agonist
 - 2015- **Mirabegron (Betmiga)**
- Flavoxate (平滑肌鬆弛劑) (Grade D)
- Imipramine (三環抗憂鬱劑) (Grade C)

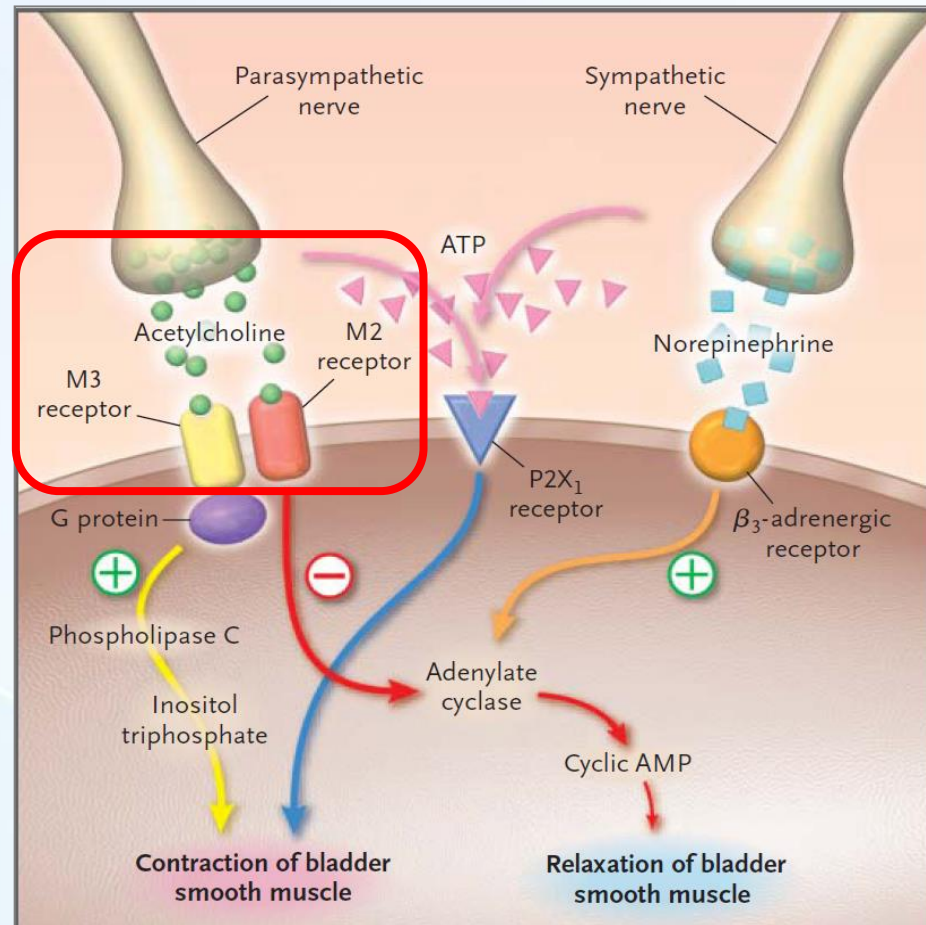


- Parasympathetic pathway

- Muscarinic receptor M2 and M3 → Bladder contraction

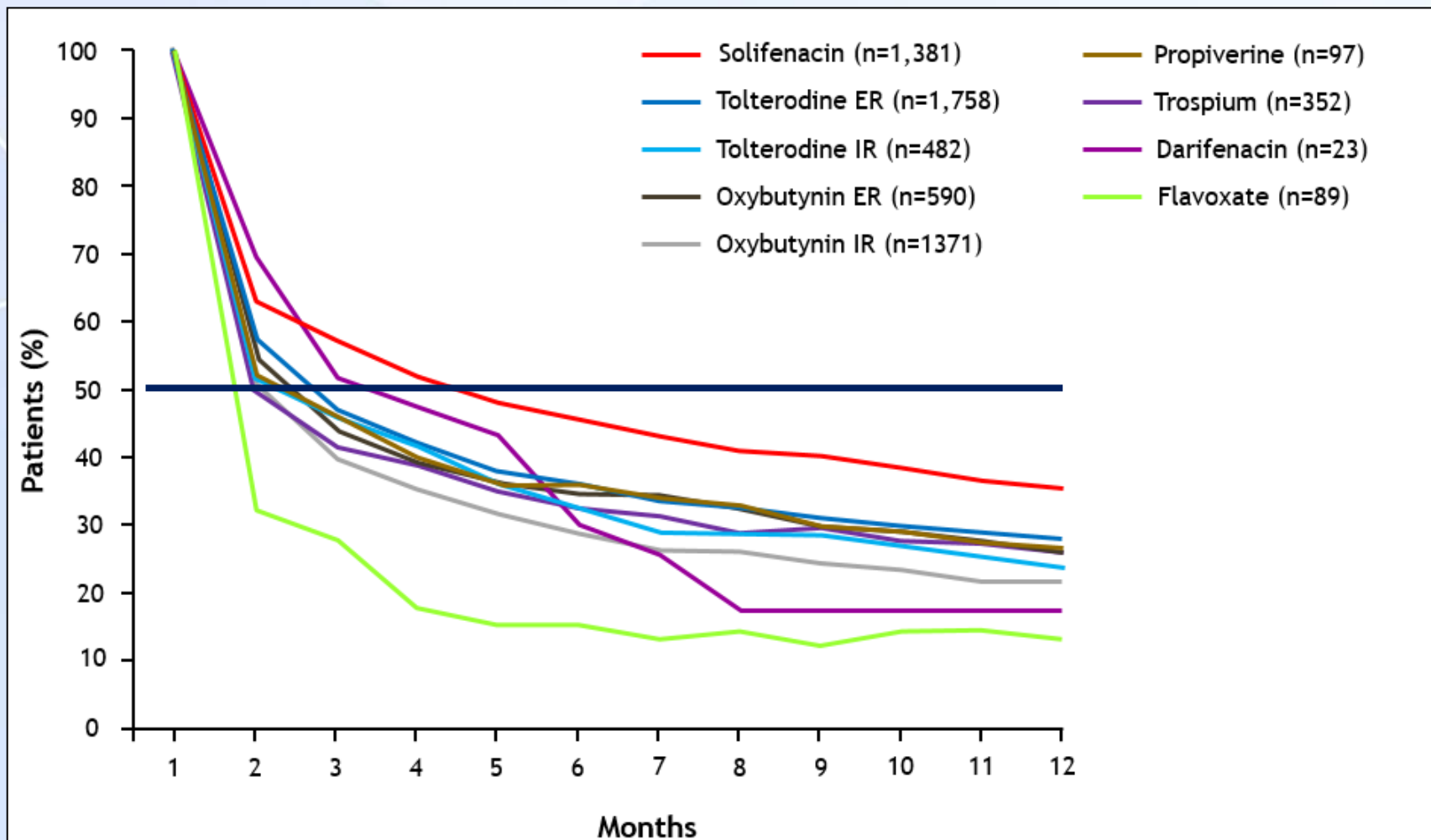
- Antimuscarinics

- Solifenacin (Vesicare)
- Tolterodine (Detrusitol)
- Trospium (Uracare)
- Oxybutynin (Diropan)
- Propiverine (Urotrol)
- Flavoxate



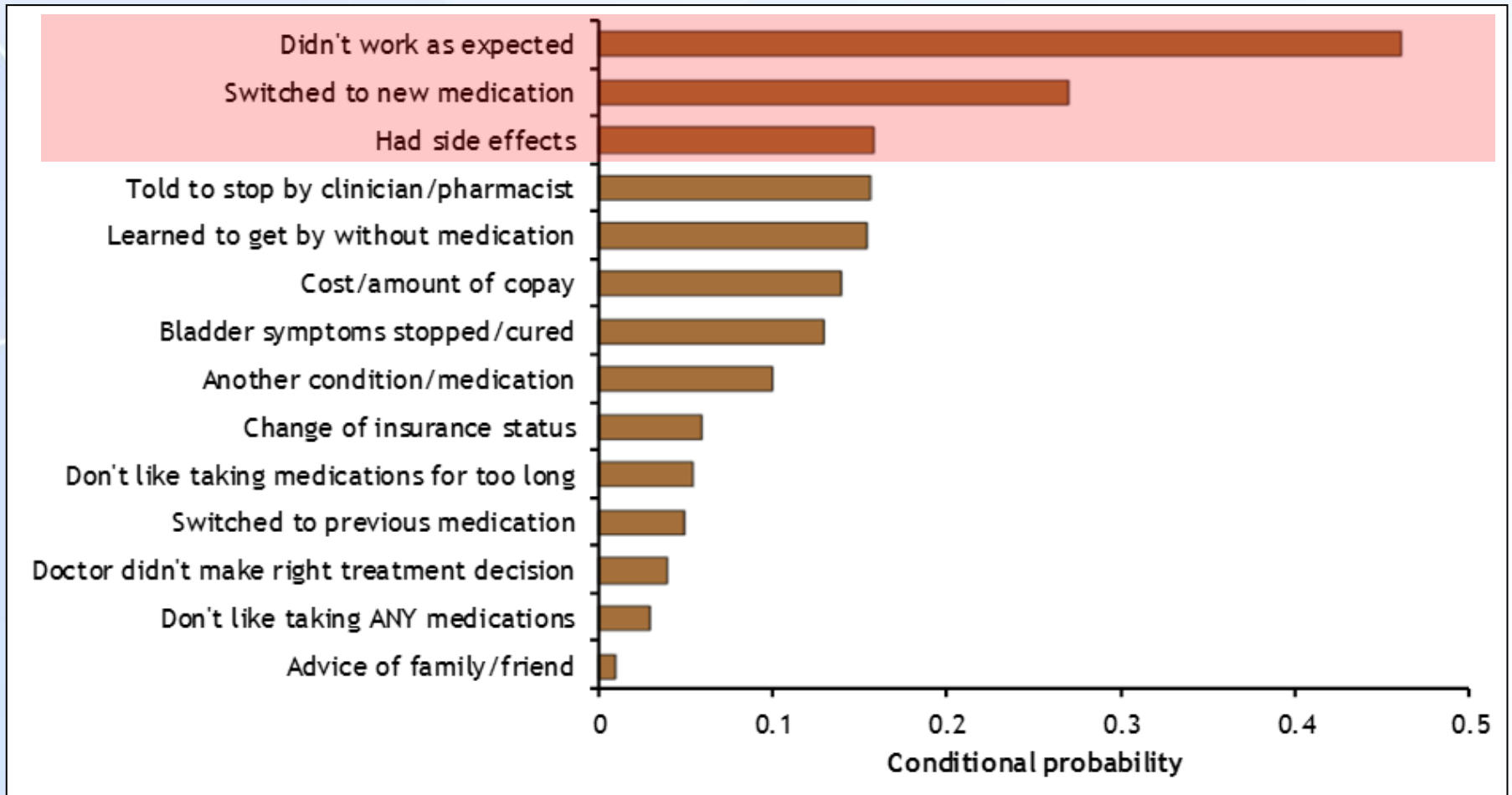


Adherence to Antimuscarinics





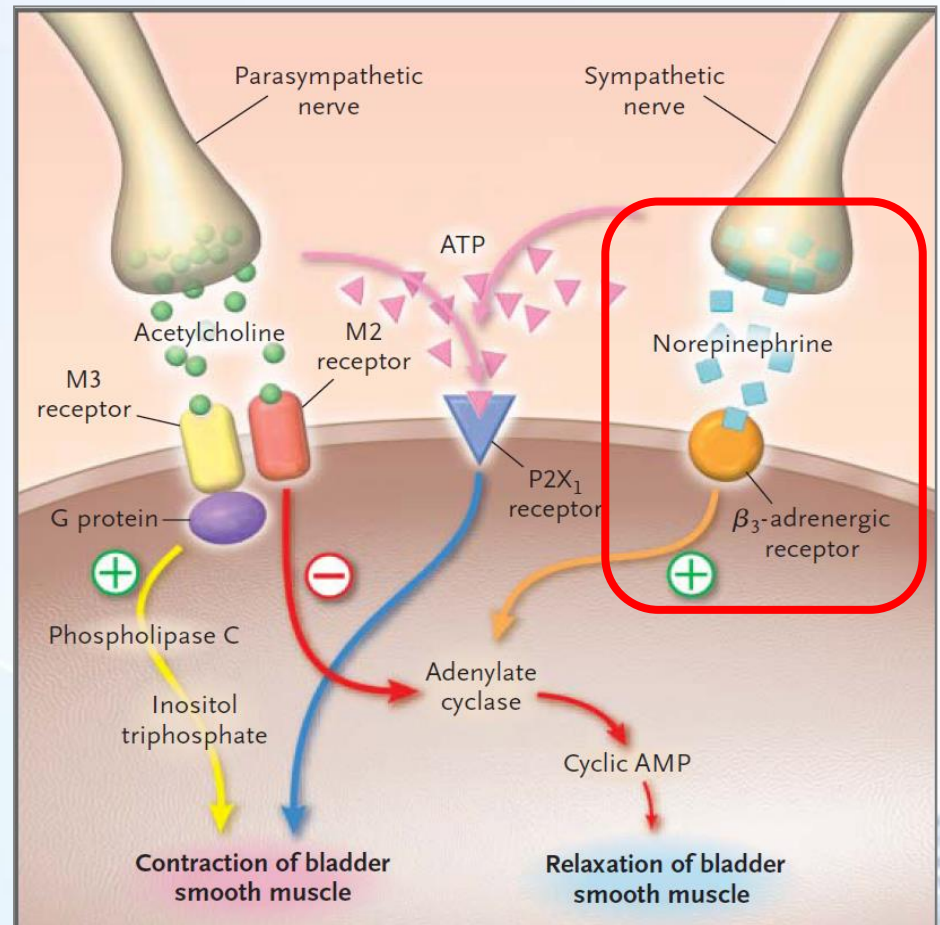
Why Discontinue?





- Sympathetic pathway

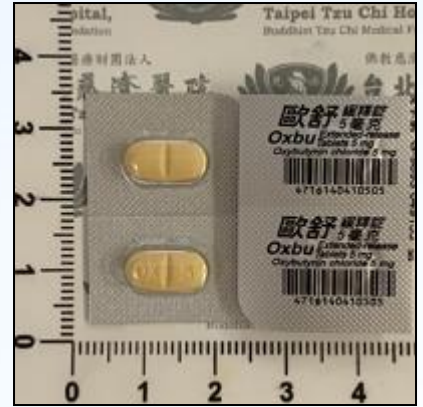
- β_3 -adrenergic receptor → Bladder relaxation
- β_3 -agonist
 - Mirabegron (Betmiga)





Oxibu ER 5mg/tab (Oxybutynin)

- 中文：歐舒緩釋錠
- 廠商：健喬信元醫藥生技股份有限公司
- 適應症：治療伴有急尿、頻尿或急迫性尿失禁症狀的膀胱過動症
- 劑量：起始5~10mg，最高30mg/每天一次
- 副作用：
 - 胃腸道：口腔乾燥症(35~72%)、便秘(9~15%)、噁心(5~12%)
 - 中樞神經(10%)：頭暈、嗜睡、頭痛、失眠
 - 心血管(1~5%)：血壓降低、水腫、血壓升高、心悸、心律不整
 - 泌尿生殖道(1~5%)：解尿困難、尿滯留、尿路感染、殘尿增加





Detrusitol 2mg/tab (Tolterodine)

- 中文：得舒妥
- 廠商：輝瑞大藥廠股份有限公司
- 適應症：治療伴有急尿、頻尿或急迫性尿失禁症狀的膀胱過動症
- 劑量：2mg/每天兩次
- 副作用：
 - 胃腸道：口腔乾燥症(35%)、便秘(7%)、腹痛/腹瀉/消化不良(4%)
 - 中樞神經(1~5%)：頭痛、頭暈、疲勞、嗜睡、焦慮症
 - 泌尿生殖道(1~2%)：解尿困難





Propiverine (Urotrol) 15mg/FC tab

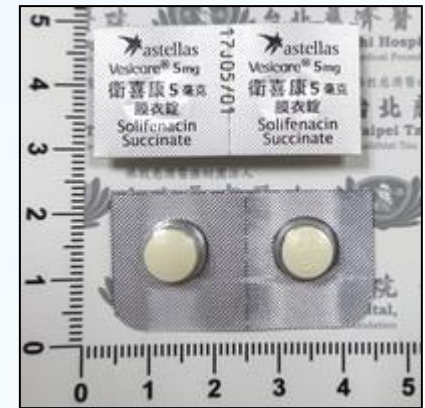
- 中文：優合膜衣錠
- 廠商：健亞生物科技股份有限公司
- 適應症：
 - 尿失禁
 - 不穩定性膀胱狀態之尿急及頻尿
- 劑量：15mg/每天2~3次
- 副作用：
 - 口乾、視覺模糊、胃腸不適、疲倦、低血壓





Solifenacin (Vesicare) 5mg/tab

- 中文：衛喜康膜衣錠
- 廠商：台灣安斯泰來製藥股份有限公司
- 適應症：對於膀胱過動症病人所伴隨之急迫性尿失禁、頻尿、尿急等之症狀性治療
- 劑量：5mg/每天一次
- 副作用：
 - 胃腸道：口腔乾燥症(11~28%)、便秘(5~13%)、腹痛/噁心/消化不良(3%)
 - 視力模糊(4~5%)、乾眼症(2%)
 - 尿路感染(3~5%)、尿滯留(1%)





Mirabegron 50 mg/tab (Betmiga)

- 中文：貝坦利持續性藥效錠
- 廠商：台灣安斯泰來製藥股份有限公司
- 適應症：治療伴有急尿、頻尿和/或急迫性尿失禁症狀的膀胱過動症
- 劑量：50mg/每天一次
- 副作用：
 - 心血管：高血壓(10%)、心搏過速(2%)
 - 中樞神經系統(1~4%)：頭痛、頭暈
 - 泌尿系統感染(3~6%)
 - 胃腸道(1~4%)：便秘、口乾、腹瀉、腹痛
 - 呼吸道(3~4%)：鼻咽炎、鼻竇炎





禁忌症

- 抗毒蕈鹼藥物

- 尿液滯留
- 腸道阻塞
- 未控制的狹角性青光眼
- 心律不整引起之心博過速
- 重度腎功能障礙或中度肝功能障礙患者

- β_3 -腎上腺素受體活化劑

- 嚴重未控制的高血壓
- 收縮壓 $>180\text{mmHg}$ 或舒張壓 $>110\text{mmHg}$



Botulinum toxin type A (BOTOX) 100U/vial

- 中文：保妥適乾粉注射劑
- 廠商：台灣愛力根藥品股份有限公司
- 適應症：
 - 因脊髓病變所引起的逼尿肌過動而導致尿失禁之成人病患，且經抗膽鹼類藥物治療無效或無法耐受者。治療有尿失禁、尿急與頻尿等膀胱過動症的成人病患，經抗膽鹼類藥物治療反應不佳或無法耐受必須停藥，且如有需要時，願意及能夠於治療後進行乾淨間歇性導尿者。
- 劑量：200~300U/次



Botulinum toxin type A (BOTOX) 100U/vial

- 禁忌症：對於罹患尿道感染的病患，以及未定期進行乾淨間歇性導尿(CIC)的急性尿滯留及排尿後餘尿量超過200mL的病患而言，不應投與
- 副作用：膀胱功能障礙
 - 尿路感染(18~49%)、血尿(4%)
 - 排尿困難(4~9%)、殘餘尿量增加(3%，不需導尿)、尿滯留(6~17%)
- 70% improvement, need repeat injection

感謝聆聽

