

新光藥訊

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老年人用藥簡介 及評估工具

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一、前言

根據聯合國的定義，65歲以上的人口佔整個社會人口超過7%即為高齡化社會。2009年，台灣地區65歲以上的老年人口佔總人口的10.6%。根據行政院의 預測，到2025年老年人口將超過全人口的20.1%；而人口老化所引發的照護問題是目前迫切需要解決的議題之一。

二、老年人常見的用藥問題

通常藥物上市前的臨床試驗都不太納入老年人為研究對象，所以核准的適用劑量需要更

本院ADR通報專線 #2165 或 線上通報

<http://www.skh.org.tw/pharmacy>

任何醫療人員發現懷疑因藥物引起的不良反應時，請即通報本院ADR小組。

小心的使用在老年人。老年人由於容易罹患多種慢性病，使用多種處方藥及臨櫃藥物(over-the-counter medication; OTC)，加上各種生理機能會隨著年齡的增加而影響藥物在體內的動力學(pharmacokinetics)，例如吸收、分布、代謝等及藥效學(pharmacodynamics)上的改變。當老年人的瘦肉質量(lean body mass)減少，相對脂肪組織增加時，對於一些藥物，比如diazepam的分佈也會增加，導致藥物在老年人體內的血漿濃度上升。腎功能也是會隨著年紀的增長而降低藥物的清除率，例如鋰鹽(lithium)、毛地黃(digoxin)、有些抗生素(vancomycin、aminoglycosides)用於老年人須特別小心謹慎。根據美國一份研究調查指出

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，在2005年至2006年之間，針對年紀57到85歲的社區老人，有81%的老年人至少會拿一種處方藥。約有29%的人則領五種或五種以上的處方藥。領有處方藥的病人中，有46%的病人至少使用一種臨櫃藥物。使用中草藥和保健食品的老人比例也逐漸上升，從1998年的14%增加至49%在2006年。且通常臨床醫師並不會常規性的詢問病患是否有使用非處方藥物；相對的大部分病患也無告知他們的醫師目前正在使用的保健食品。許多中草藥與藥物所產生的交互作用可能會導致嚴重的副作用，比如說人蔘、銀杏同時

和warfarin併用時，可能會增加出血的副作用。另一個例子為同時使用聖約翰草(St. John's wort)和抗憂鬱藥物(血清素再回收抑制劑)，會增加血清素症候群(serotonin syndrome)的可能性，例如意識改變、顫抖、發燒或肌肉僵硬等。因為罹患多種慢性病，長期使用多種藥物而易有多重用(polypharmacy)的情形。且加上對於疾病治療的迷思和長期療效的不佳，容易導致多重就醫的問題。其它常見問題還包括不需要用藥、重複用藥、劑量太高或太低、藥物不良反應及不遵醫囑等。有時因為聽力、視力的減退，誤解用藥方式而影響服藥的順從性。

三、老年人潛在不當用藥及評估工具

在1991年美國發表了第一版的”Beers潛在性不適當用藥準則”，主要是回顧之前文獻資料，並邀請各領域專家進而建立的條列式準則。目前在加拿大和美國有許多指標用來評估老人用藥合理性和安全性。Beers criteria則是目前最廣泛被拿來使用。早期Beers criteria主要是用於評估護理之家的住民的用藥評估。後來此一準則廣被應用於評估各層級醫療院所或居家照護之處方，或社區居民用藥之評估，也被陸續作部分修訂並加以應用。目前Beers criteria於2012年再度更新；改版內容包括53種

藥物，分成避免使用(eg, barbiturates, chlorpropamide)、特定疾病不建議使用和小心使用(used with caution)三種。有新增加的藥物包括sliding scale insulin, glyburide和megestrol於不建議使用的種類。Thiazolidinediones對於有心衰竭病人應避免使用；selective serotonin reuptake inhibitors (SSRIs)對於骨折的病人也不建議使用。

使用評估老年人潛在性不適當用藥(potentially inappropriate medications, PIMs)的工具可幫助降低老年人的潛在性不適當用藥。然而這些工具大都源自於

歐美國家，例如Beers criteria、Screening tool of older persons' potentially inappropriate prescriptions (STOPP)、McLeod criteria等，有時很難完全適用於其他國家。於是在2010年，集合國內老人醫學和藥學學者共同制定”台灣潛在性不適當用藥準則，PIM-Taiwan

Criteria”，主要是參考已發表於世界各地的”老年人潛在性不適當用藥準則”初稿。另邀請其他國內專家，依兩階段Delphin方法，完成了本準則。PIM-Taiwan Criteria分為兩部分，表一主要是針對不建議第一線使用在老人的藥物；表二則是列舉常見診斷下，應避免使用的藥物。

四、老年人的用藥原則

理想的用藥狀況是達到藥效且無副作用產生外，還需使用方便，種類越少越好。詳細評估老年人的基本資料，包括疾病診斷、用藥史、是否目前有使用非處方藥物等。定期檢測老年人所使用的藥物，可幫助了解是否需調整目前的藥物治療。確定藥物的使用適應症，通常臨床醫師不太願意停掉不需要的藥物，尤其是其他醫師的處方且病人對於治療似乎是可接受的。有些藥物停用時需緩慢減量停用，包括β-阻斷劑，opioids, barbiturates, clonidine, gabapentin和抗憂鬱劑。老年人用藥基本原則，自最低、安全的劑量開始慢慢往上增加。避免新處方藥物和目前使用的藥物或疾病之間產生交互作用。定期追蹤療效、服藥順從性和是否有發生不良反應。

有時當使用藥物治療疾病而發生新的症狀時，應仔細謹慎評估的可能原因，

避免再加上另一種藥物來治療先前藥物所造成的副作用，而造成處方連串事件 (prescribing cascade)。尤其當年紀大且合併使用多種藥物治療時，容易被誤解為有新的疾病或因為是老化過程所產生的症狀，導致更可能發生處方連串事件的惡性循環。最常見的一個例子是使用抗精神病藥物或metoclopramide引起的錐體外症候群問題，如巴金森氏症候群，而加上抗巴金森氏症藥物治療。使用抗巴金森氏症藥物主要會造成姿態性低血壓和譫妄等副作用。在一個臨床試驗中，針對65到99歲的老年人，有使用抗精神病藥物超過90天的病人比沒有使用者有高出五倍的機率會接受抗巴金森氏症藥物治療。有許多危險因子是會影響到老年人的用藥安全，如多種慢性疾病、記憶功能減退、使用多種處方和非處方藥物服藥順從性不佳，及肝腎功能的改變等。

五、結論

隨著人口老化，經建會推估，民國106年台灣將從高齡化社會正式進入高齡社會。面對老化海嘯來襲，老人用藥問題和安全性將是一大挑戰。面對老年人的藥物時，身為藥師的我們要小心謹慎

評估使用藥物是否合適？使用方式或劑量是否需要調整？並加強對病患和家屬的正確用藥觀念；鼓勵老年病患在固定的藥師藥局拿藥，降低重複用藥的危險性和預防潛在的問題。

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表一：

Table 1. 2010 Criteria for Potentially Inappropriate Medication Use in Persons Aged \geq 65 Years of Age (PIM-TAIWAN): Independent of Diagnoses or Conditions.

no	Classification/Medications	Concern	Alternative therapy
1	Drugs for peptic ulcer and gastro-oesophageal reflux disease (GERD): cimetidine	Central nervous system (CNS) adverse effects including confusion.	proton-pump inhibitors or other H ₂ -receptor antagonists
2	Antispasmodics-gastrointestinal: belladonna alkaloid, hyoscynamine products	Gastrointestinal (GI) antispasmodic drugs are highly anticholinergic and have uncertain effectiveness. These drugs should be avoided (especially for long-term use).	use only when strongly indicated, avoid long-term use
3	Antispasmodics-urological: oxybutynin	This antispasmodic drug is poorly tolerated by elderly patients, since these cause anticholinergic adverse effects, sedation, and weakness. Additionally, their effectiveness at doses tolerated by elderly patients is questionable.	suggest behavioral therapy, use only when strongly indicated
4	Oral antihyperglycemic drugs: chlorpropamide	It has a prolonged half-life in elderly patients and could cause prolonged hypoglycemia. Additionally, it is the only oral hypoglycemic agent that causes inappropriate antidiuretic hormone hypersecretion (SIADH).	short to intermediate acting second-generation sulfonylureas or other antidiabetic agents
5	Antithrombotic agents: ticlopidine	Has been shown to be no better than aspirin in preventing clotting and may be considerably more toxic.	aspirin or clopidogrel
6	Digitalis glycosides: digoxin > 0.125mg/day	Decreased renal clearance may lead to increased risk of toxic effects. (should not exceed > 0.125mg/d except for arrhythmia)	-
7	Antihypertensives: clonidine	Potential for orthostatic hypotension and central nervous system (CNS) adverse effects	another class of antihypertensive drugs
8	Antihypertensives: methyldopa	May cause bradycardia and exacerbate depression in elderly patients.	another class of antihypertensive drugs
9	Antihypertensives: reserpine	May induce depression, impotence, sedation, and orthostatic hypotension.	another class of antihypertensive drugs

Table 1 (continued) 2010 Criteria for Potentially Inappropriate Medication Use in Persons Aged \geq 65 Years of Age (PIM-TAIWAN): Independent of Diagnoses or Conditions.

no	Classification/Medications	Concern	Alternative therapy
10	Antiinflammatory and antirheumatic product, non-steroids: ketorolac	Immediate and long-term use should be avoided in older persons, a significant number have asymptomatic gastrointestinal (GI) pathologic conditions.	1. acetaminophen; 2. other nonsteroidal anti-inflammatory drugs (avoid long-term use)
11	Antiinflammatory and antirheumatic product, non-steroids: indomethacin (indomethacin)	Of all available nonsteroidal anti-inflammatory drugs, this drug produces the most central nervous system (CNS) adverse effects.	1. acetaminophen; 2. other nonsteroidal anti-inflammatory drugs (avoid long-term use)
12	Antiinflammatory and antirheumatic product, non-steroids: phenylbutazone	Severe hematological adverse effects.	1. acetaminophen; 2. other nonsteroidal anti-inflammatory drugs (avoid long-term use)
13	Antiinflammatory and antirheumatic product, non-steroids: piroxicam	Have the potential to produce confusion, gastrointestinal (GI) bleeding, renal failure, high blood pressure and heart failure.	1. acetaminophen; 2. other nonsteroidal anti-inflammatory drugs (avoid long-term use)
14	Muscle relaxants: baclofen, carisoprodol, chlorzoxazone, chlorphenesin carbamate, chlorzoxazone, cyclobenzaprine, orphenadrine (citrate), phenpropamate, prindolol, tizanidine, tolperisone	Most muscle relaxants are poorly tolerated by elderly patients, since these cause anticholinergic adverse effects, sedation, and weakness. Additionally, their effectiveness at doses tolerated by elderly patients is questionable.	use only when strongly indicated, avoid long-term use
15	Analgesics-opioids: pethidine (meperidine)	Not an effective oral analgesic in doses commonly used. May cause confusion and has many disadvantages to other narcotic drugs.	other narcotic drugs
16	Analgesics-opioids: propoxyphene	Offers little analgesic advantage over acetaminophen, yet has the adverse effects of other narcotic drugs.	other narcotic drugs
17	Antipsychotics-low potency: chlorpromazine, levomepromazine, loxapine, thioridazine.	Anticholinergic effects, second choice of drugs.	atypical antipsychotics, except clozapine
18	Antipsychotics: Clozapine	May lower seizure thresholds and increase risk of agranulocytosis	other atypical antipsychotics

表一(續)：

Table 1 (continued) 2010 Criteria for Potentially Inappropriate Medication Use in Persons Aged ≥ 65 Years of Age (PIM-TAIWAN): Independent of Diagnoses or Conditions.

no	Classification/Medications	Concern	Alternative therapy
19	Anxiolytics, hypnotics and sedatives-Long acting benzodiazepines: clonazepam, chlordiazepoxide, clobazam, diazepam, fludiazepam, flunitrazepam, flurazepam, nitrazepam, nordazepam, oxazolam, potassium clorazepate.	These drugs have a long half-life in elderly patients (often several days), producing prolonged sedation and increasing the risk of falls and fractures.	1. use short-acting benzodiazepines only when strongly indicated. 2. lowest effective dose, avoid long-term use
20	Anxiolytics-Carbamate: meprobamate	This is a highly addictive and sedating anxiolytic. Those using meprobamate for prolonged periods may become addicted and may need to be withdrawn slowly.	1. use short-acting benzodiazepines only when strongly indicated. 2. lowest effective dose, avoid long-term use
21	Hypnotics and sedatives-Benzodiazepine: Triazolam > 0.25mg/day	Risk of falls and fracture	≤ 0.25mg/day, or other short-acting benzodiazepines
22	Hypnotics and sedatives-Barbiturate: amobarbital, pentobarbital, secobarbital	Are highly addictive and cause more adverse effects than most sedative or hypnotic drugs in elderly patients.	1. use short-acting benzodiazepines only when strongly indicated. 2. lowest effective dose, avoid long-term use
23	Tricyclic antidepressants: amitriptyline, clomipramine, doxepin, imipramine, melitracen.	Because of its strong anticholinergic and sedation properties, tricyclic antidepressants are rarely the choice for elderly patients.	antidepressants other than tricyclic antidepressants
24	First generation antihistamine: alimemazine, azatadine, brompheniramine, buclizine, carbinoxamine, chlorcyclizine, chlorphenamine, clemastine, cyclizine, cyproheptadine, dexchlorpheniramine, diphenhydramine, diphenylpyraline, doxylamine, homo-chlorcyclizine, hcl(domeganin), ketorifen, mebhydrolin, meclozine (meclizine), mepyramine, mequitazine, oxatomide, phenindamine, pheniramine, promethazine, tripeleminamine, trimethidine	These antihistamines may have potent anticholinergic properties.	second-generation antihistamines

表二：

Table 2 2010 Criteria for Potentially Inappropriate Medication Use in Persons ≥ 65 Years of Age in Taiwan (PIM-TAIWAN): Considering Diagnoses or Conditions

no	Disease or Condition	Medication/ Medication Classes	Concern
1	Blood clotting disorders or receiving anticoagulant therapy	Antiinflammatory and antirheumatic products, non-steroids (NSAID), acetylsalicylic acid	May prolong clotting time or inhibit platelet aggregation, resulting in an increased potential for bleeding
2	Chronic constipation	Anticholinergic	May exacerbate constipation
3	Chronic kidney disease	Antiinflammatory and antirheumatic products, non-steroids (NSAID)	May worsen renal failure, may cause salt and water retention
4	Chronic obstructive pulmonary disease	Benzodiazepines*, Non-selective Beta blocking agents**	*May induce respiratory depression. **May exacerbate or cause respiratory depression
5	Cognitive impairment, dementia	Anticholinergics, benzodiazepines	Concern due to CNS-altering effects
6	Glaucoma	Anticholinergics	May aggravate glaucoma
7	Heart failure	Antiinflammatory and antirheumatic products, non-steroids (NSAID)	May cause salt and water retention and worsen heart failure
8	Peptic ulcer disease	Antiinflammatory and antirheumatic products, non-steroids (NSAID), (COX II inhibitors were excluded), acetylsalicylic acid	May exacerbate existing ulcers or produce new/additional ulcers
9	Sleep apnea syndrome	Benzodiazepines	May suppress breathing
10	Syncope or falls	Benzodiazepines	May produce ataxia, impaired psychomotor function, syncope, and additional falls
11	Urinary incontinence	Alpha-adrenoreceptor antagonists*, benzodiazepines**	*May produce polyuria and worsening of incontinence **May induce drowsiness, dizziness, and urine incontinence
12	Urinary retention	Anticholinergics	May decrease urinary flow, leading to urinary retention