主辦機構：

HKU Med LKS Faculty of Medicine Department of Medicine 香港大學內科學系

康樂及文化事務署 Leisure and Cultural Services Department

香港公共圖書館 Hong Kong Public Libraries

主題　：**高血壓與痛風**

講題一：**點解高血壓**

講者：張文勇教授
香港大學李嘉誠醫學院內科學系
孫建業心臟基金教授 (心血管治療學)

講題二：**如何正確治療痛風**

講者：張錚醫生
香港大學李嘉誠醫學院內科學系
名譽臨床助理教授

☎ **2255 3749**

點解高血壓

Professor Bernard M Y Cheung
張文勇教授

Division of Clinical Pharmacology & Therapeutics
Department of Medicine
University of Hong Kong

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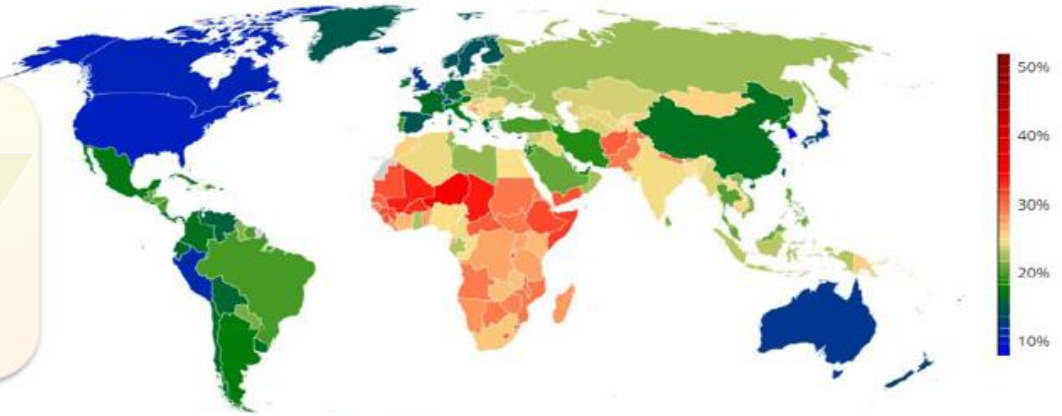
孫建業心臟基金教授 (心血管治療學)

Worldwide prevalence of hypertension
全球高血壓患病率

- Estimated to be 1.13 billion (2015)[1] 估計為11.3億（2015）
- 30-45% in adults[1] 成人30-45%

WOMEN 女性

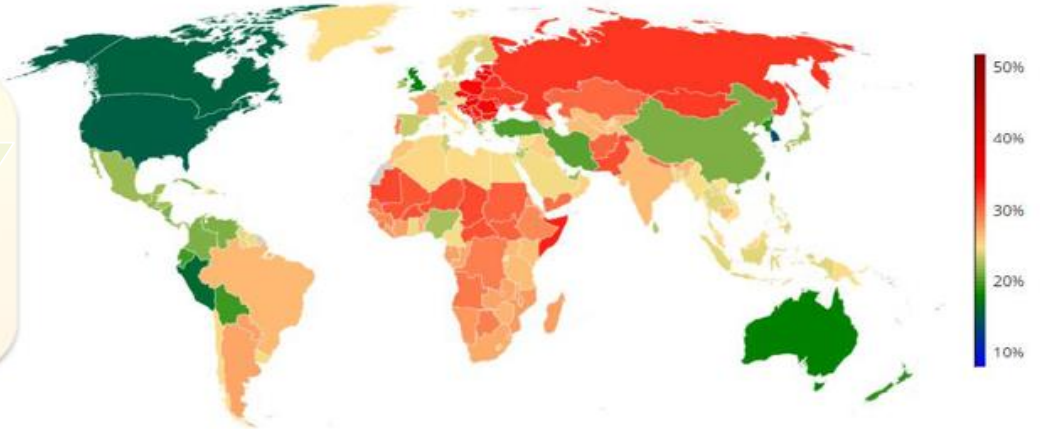
全球年齡標準化
高血壓患病率：
20.1%



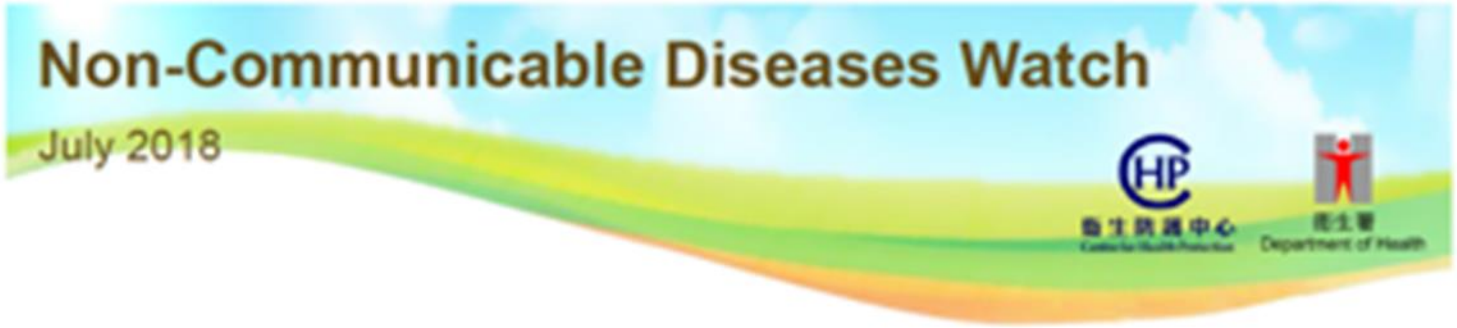
[2]

MEN 男性

全球年齡標準化
高血壓患病率：
24.1%



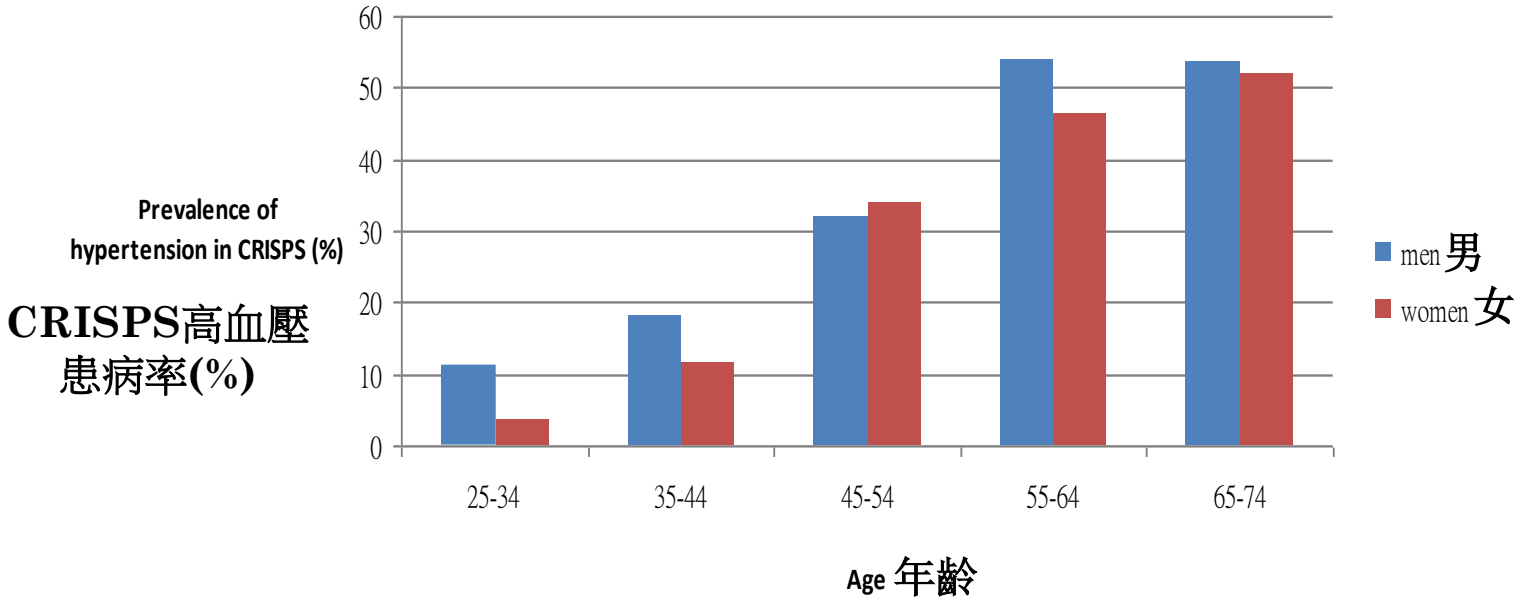
1.Williams B et al. *Eur Heart J*. 2018;39(33):3021-3104. 2. NCD Risk Factor Collaboration (NCD-RisC). *Lancet*. 2017;389(10064):37-55.

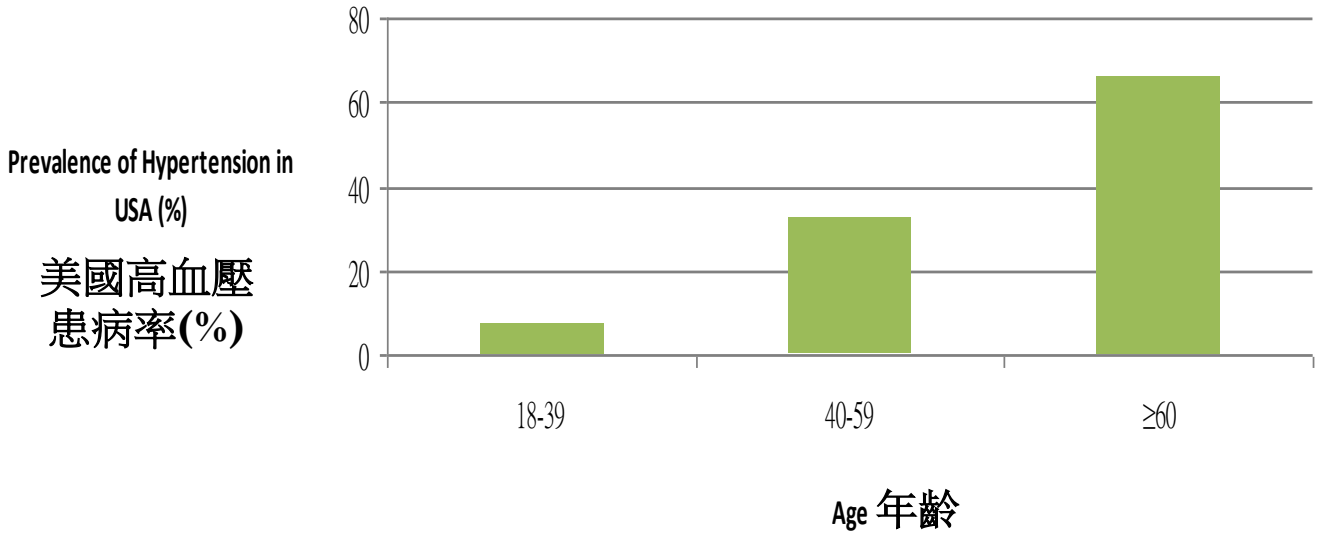


Hypertension: A Burning Health Problem

Hong Kong Centre for Health Protection Population Health Survey 2014/5
香港衛生防護中心人口健康調查（2014/5）

	Prevalence
Diagnosed hypertension 已確診的高血壓	14.6%
Undiagnosed hypertension 未確診的高血壓	13.2%
General obesity (BMI≥25) 普通型肥胖	30%
Hypercholesterolaemia (TC≥5.2) 高膽固醇血症	50%





Cheung et al. Am J Hypertens 2008; Ong et al. Hypertension 2006

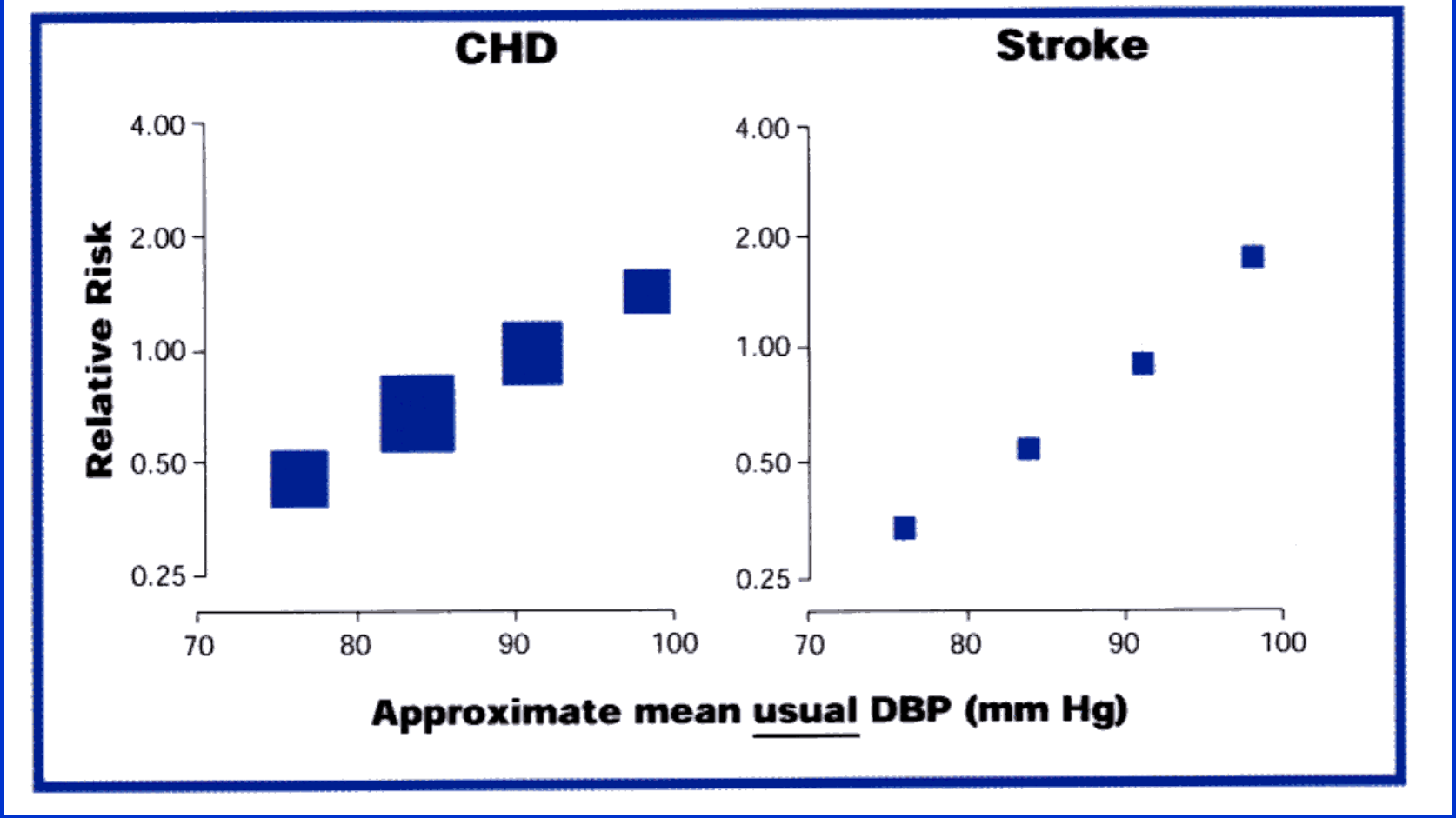
ISH guideline: Classification of hypertension

國際高血壓學會（ISH）指南：高血壓的分類

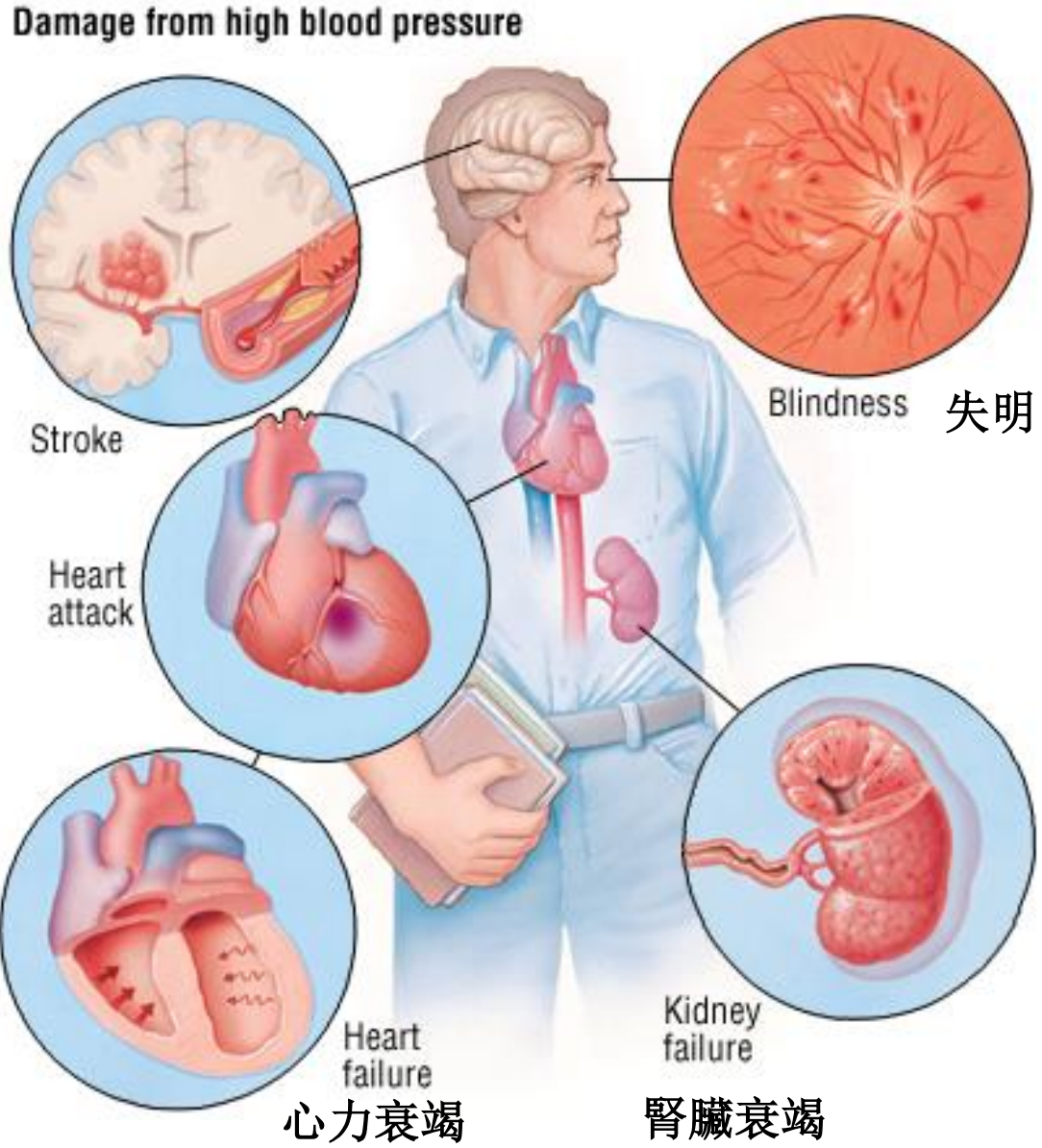
ISH Category[1] 分類	Systolic (mmHg) 收縮壓		Diastolic (mmHg) 舒張壓
Normal BP 正常血壓	<130	and	<85
High-normal BP 血壓升高	130-139	and/or	85-89
Grade 1 Hypertension 1級高血壓	140-159	and/or	90-99
Grade 2 Hypertension 2級高血壓	≥ 160	and/or	≥100

Unger T et al. *Hypertension*. 2020;75(6):1334-1357.

Hypertension and CVD
高血壓與心血管疾病



高血壓造成的損傷



中風

失明

心臟病發作

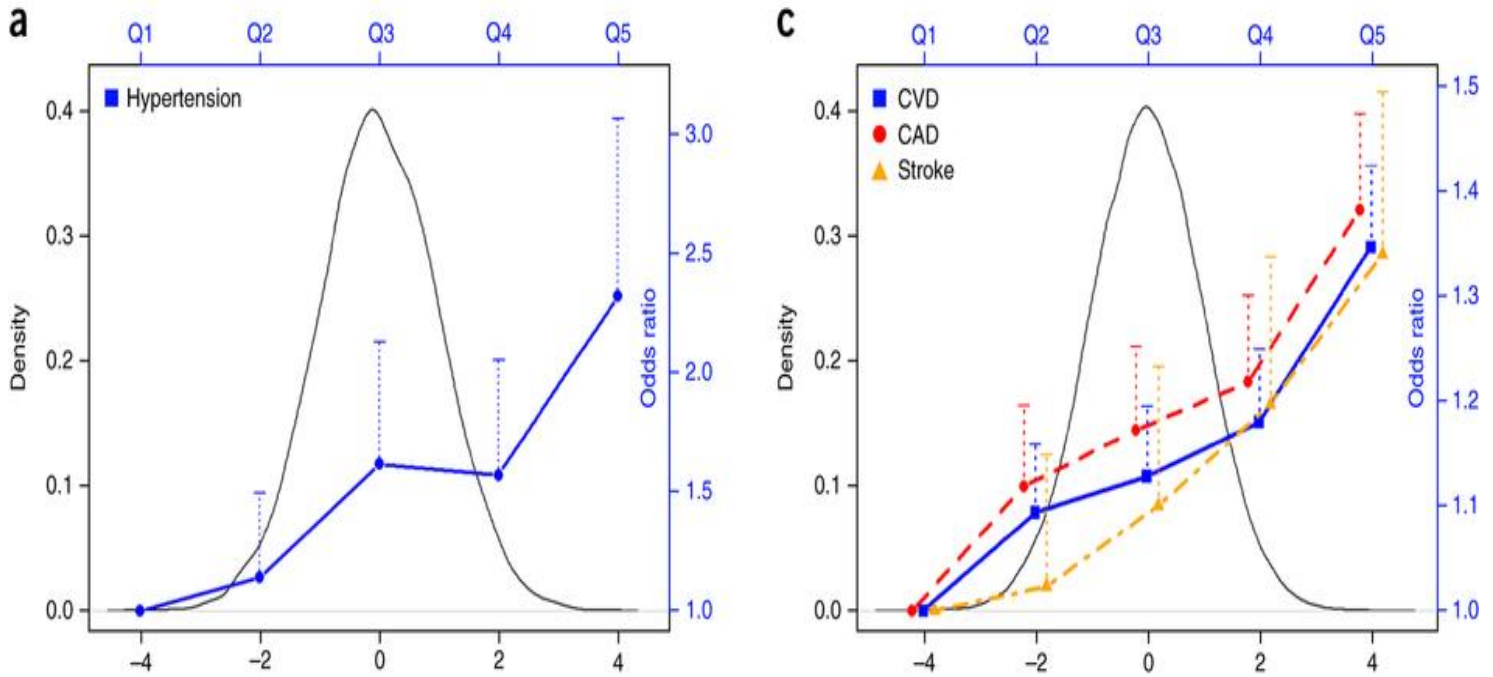
心力衰竭

腎臟衰竭

Why do people have hypertension?
人們為什麼患有高血壓？

- Genetic factors 遺傳因素
- Environmental factors 環境因素

Genetic risk score involving 107 loci is associated with risk of hypertension and CVD



b

(mm Hg)	Q1	Q2	Q3	Q4	Q5
SBP	136.4 (17.2)	138.7 (16.5)	142.5 (18.8)	142.5 (19.4)	145.7 (19.7)
DBP	82.9 (9.9)	84.3 (10.3)	85.9 (11.1)	86.0 (10.9)	87.6 (11.9)
PP	53.4 (11.6)	54.4 (11.3)	56.7 (12.3)	56.5 (12.4)	58.2 (12.4)

d

(count)	Q1	Q2	Q3	Q4	Q5
CVD	2,462	2,689	2,759	2,874	3,229
CAD	1,783	1,996	2,078	2,154	2,417
Stroke	581	597	640	695	776

Genome-wide association analysis identifies novel blood pressure loci and offers biological insights into cardiovascular risk.
Warren et al. Nat Genet 2017

Secondary causes of hypertension 繼發性高血壓的原因

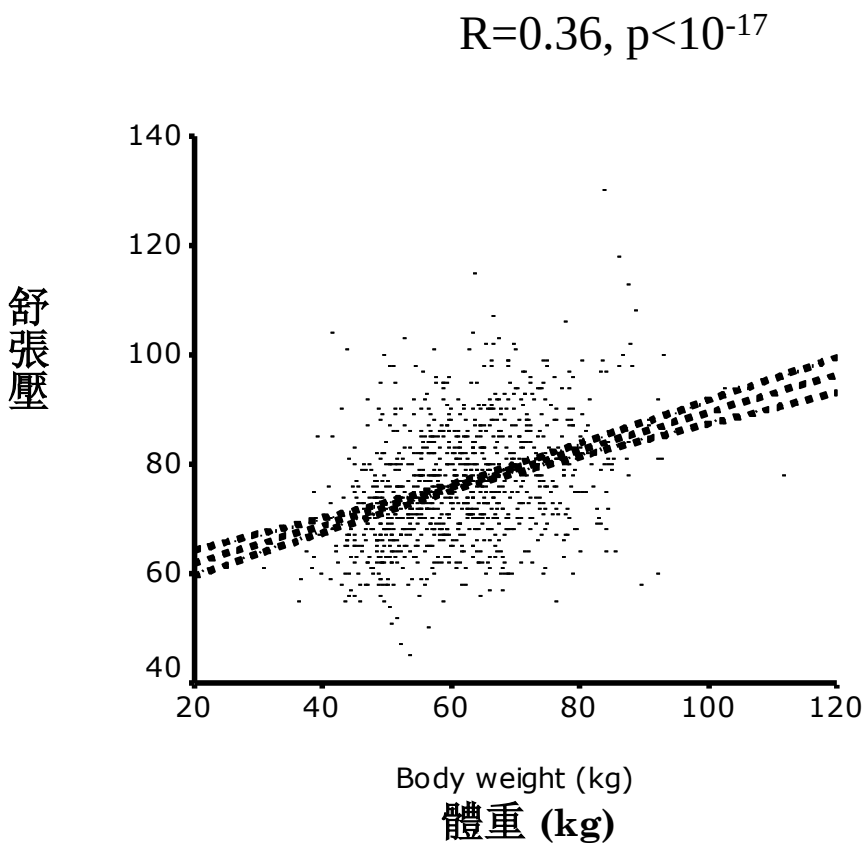
Anatomical and congenital causes 解剖及先天原因	Coarctation of the aorta 主動脈縮窄 Renal artery stenosis 腎臟動脈狹窄 Polycystic kidneys 多囊性腎臟
Renal causes 腎臟原因	Polycystic kidneys 多囊性腎臟 Glomerulonephritis 腎小球腎炎 Pyelonephritis 腎盂腎炎 Diabetic nephropathy 糖尿病腎病 Other causes of renal failure其他致腎衰竭的原因
Endocrine causes 內分泌原因	Hyperaldosteronism (including Conn's syndrome) 醛固酮增多症（包括康氏綜合症） Phaeochromocytoma 嗜鉻細胞瘤 Cushing's syndrome 庫欣綜合症 Acromegaly 肢端肥大症 Hyperparathyroidism 甲狀旁腺功能亢進
Vasculitis 血管炎	Systemic lupus erythematosus 系統性紅斑狼瘡 Polyarteritis nodosa 結節性多動脈炎 Takayasu's disease 高安氏動脈炎
Drugs 藥物	Corticosteroid 皮質類固醇 Oral contraceptive 口服避孕藥 Carbenoxolone 甘珀酸 Liquorice 甘草 Cyclosporin 環孢菌素

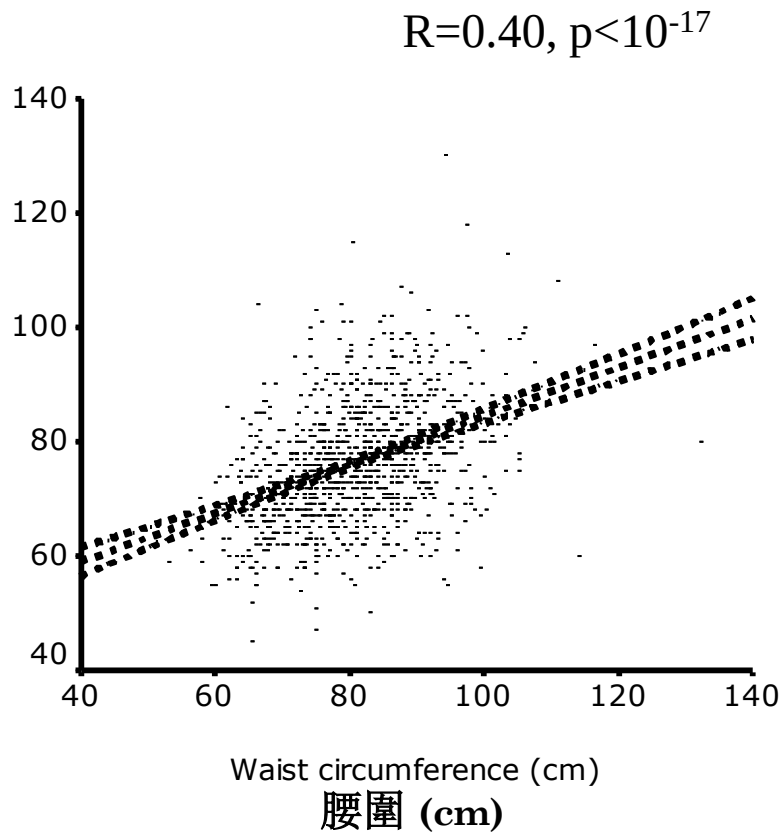
Environmental factors raising blood pressure
血壓升高的環境因素

- Obesity 肥胖
- Salt intake 鹽的攝入量
- Diet high in fat and low in fruits & vegetables 攝取高脂肪和飲食缺乏水果和蔬菜
- Stress 壓力
- Alcohol 酒精

Strong relationship between blood pressure and obesity in the Hong Kong Cardiovascular Risk Factor Prevalence Study (CRISPS)

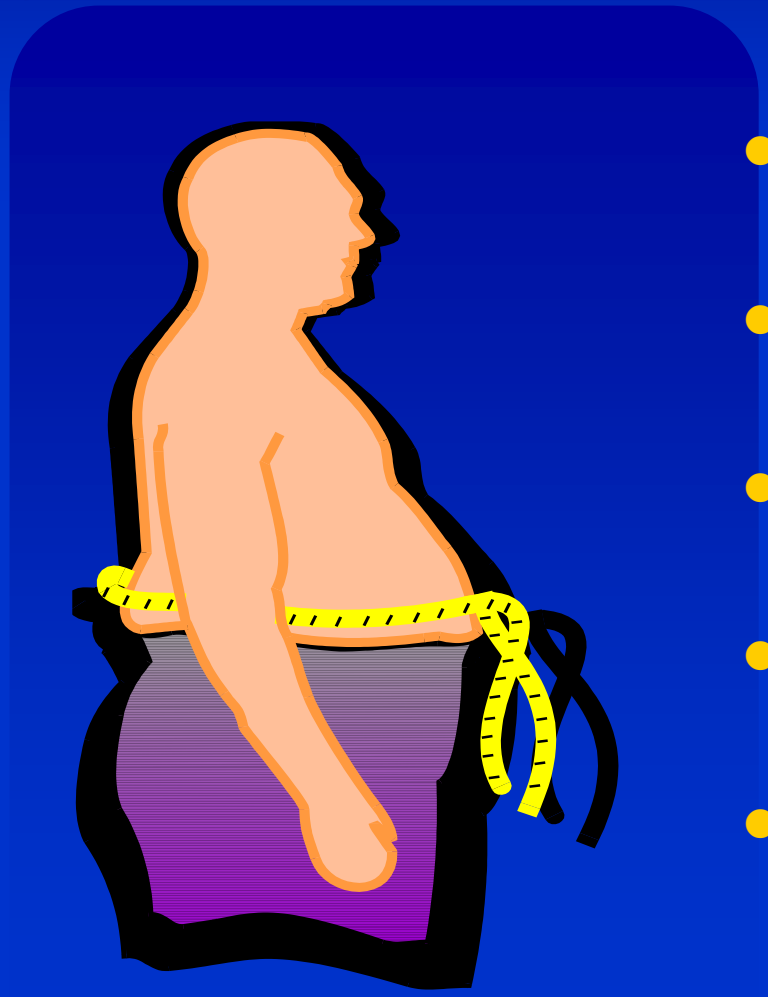
香港心血管危險因素患病率研究（CRISPS）提示血壓與肥胖之間有密切關係





Obstructive sleep apnoea
阻塞性睡眠呼吸暫停

Hypertension as part of the metabolic syndrome
高血壓是代謝綜合症的一部分



- Abdominal obesity 腹型肥胖
- High blood pressure 高血壓
- High fasting plasma glucose 高空腹血糖
- Hypertriglyceridemia 高甘油三酯血症
- Low HDL-cholesterol 低HDL-膽固醇

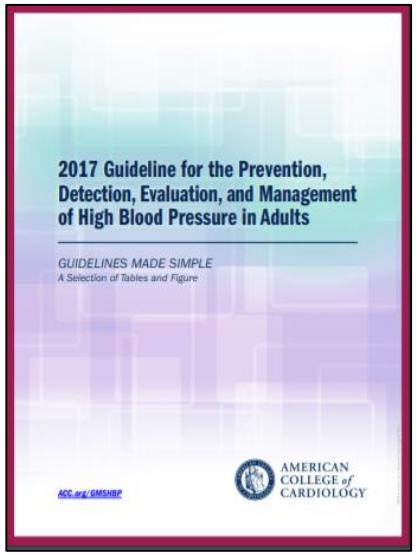
Cheung B. J Hum Hypertens 2008

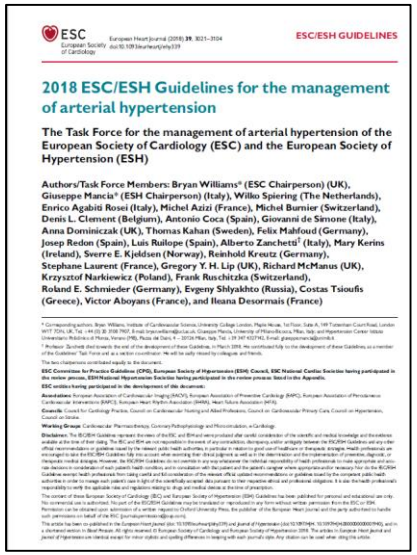
How to treat hypertension?

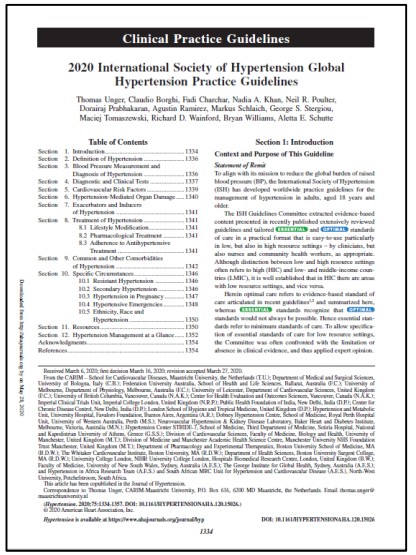
怎麼治療高血壓？

International hypertension guidelines

國際高血壓指南







JNC VIII[1]	AHA/ACC[2]	ESC/ESH[3]	ISH[4]
(2014)	(2017)	(2018)	(2020)

1. James PA et al. *JAMA*. 2014;311(5):507-520.
2. Whelton PK et al. *Circulation*. 2018;138(17):e484-e594.
3. Williams B et al. *Eur Heart J*. 2018;39(33):3021-3104.
4. Unger T et al. *Hypertension*. 2020;75(6):1334-1357.

ISH guideline: Blood pressure target

ISH指南：血壓目標值

Aim for BP Control within 3 month

目標取在3個月內使血壓受控制

Essential 必要情況

- Target BP reduction at least 20/10mmHg, ideally to <140/90mmHg
- 目標血壓降低至少**20/10mmHg**，理想情況下**<140/90mmHg**

Optimal 最佳情況

- <65 years old, BP target <130/80mmHg if tolerated (but >120/70mmHg)
- **<65歲，如果耐受，血壓目標<130/80 mmHg（但> 120/70 mmHg）**
- ≥65 years old, BP target <140/90mmHg but consider an individualized BP target in the context of frailty, independence and likely tolerability of treatment
- **≥65歲，血壓目標<140 / 90mmHg，但在體弱、獨立和可能接受治療的情況下考慮個體化的血壓目標**

Unger T et al. *Hypertension*. 2020;75(6):1334-1357.

Why non-pharmacological treatment is both Essential and Optimal
為什麼非藥物治療既是必需的又是最佳的

- Non-pharmacological treatment saves treatment costs

非藥物治療節省了治療費用

- Non-pharmacological treatment improves blood pressure control and health outcomes

非藥物治療可改善血壓控制和健康狀況

- People with stage 1 hypertension (130-139/80-89 mmHg) should have non-pharmacological treatment in the first instance unless their CV risk is high

患有1期高血壓（130-139 / 80-89 mmHg）的人應首先接受非藥物治療，除非其心血管風險很高

- Non-pharmacological treatment: its effectiveness and its cost-effectiveness are variable, but it is safe

非藥物治療：其有效性和成本效益是可變的，但它是安全的

Lifestyle Modification 改善生活方式

Modification *改善方式*	*Approximate SBP reduction* *收縮壓大致降低程度*
Weight reduction 減肥	5–20 mmHg/10 kg weight loss 5-20毫米汞柱/10千克體重減輕
DASH diet 抗高血壓飲食	8–14 mmHg 8-14毫米汞柱
Low sodium diet 低鈉飲食	2–8 mmHg 2-8毫米汞柱
Physical activity 體育運動	4–9 mmHg 4-9毫米汞柱
Moderate alcohol consumption 適度飲酒	2–4 mmHg 2-4毫米汞柱

Strong relationship between blood pressure and obesity in the Hong Kong Cardiovascular Risk Factor Prevalence Study (CRISPS)

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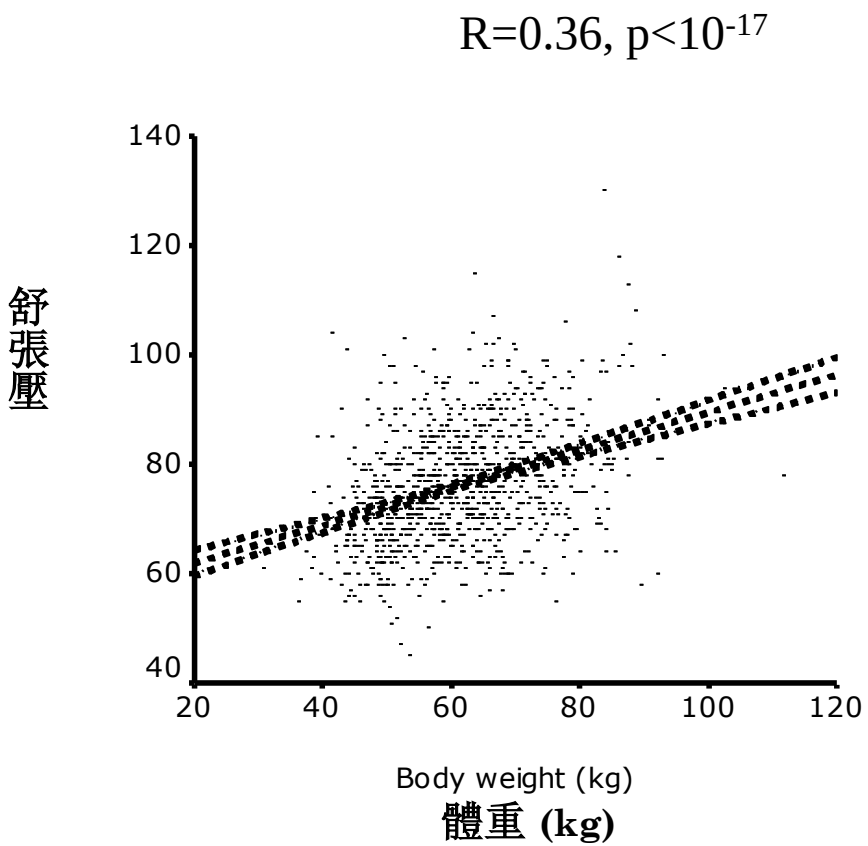
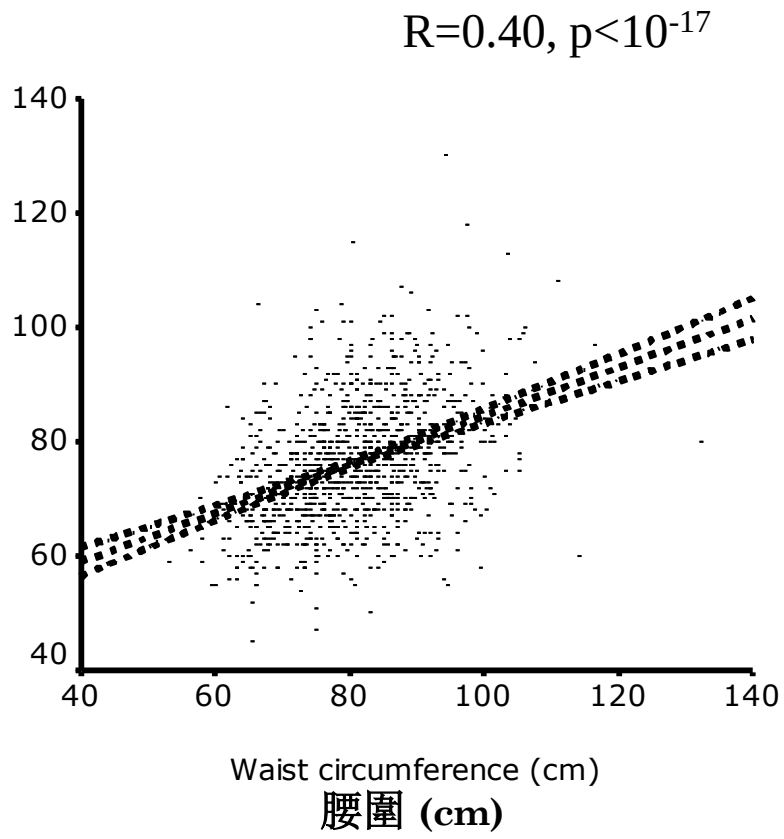
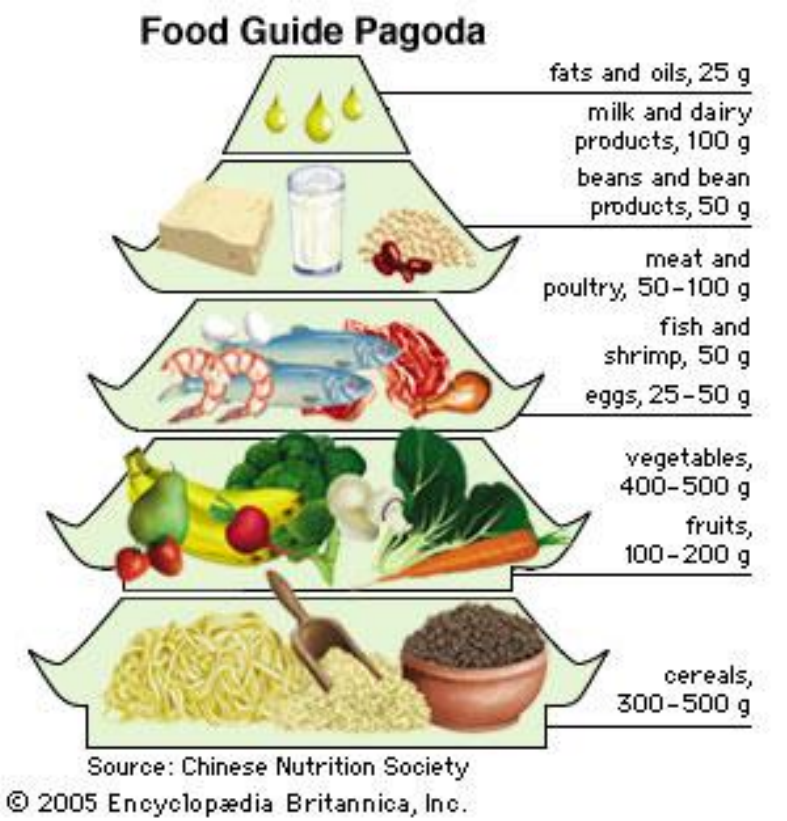




Krstic Z, 2020


多吃
蔬菜和水果
選用不同的品種和不同的顏色
適量地吃
麵包、米飯、面食、根莖類
(如土豆、芋頭、甜薯等)
選用全穀粗糧或高纖維的品種
魚、肉、雞、
豆類、蛋
選用瘦的肉並去皮
牛奶、酸奶、乳
酪、加鈣豆奶
選用低脂的產品
堅果、健康油
減少食用垃圾食品、快餐食品以及調味、高鹽或高糖和脂肪高反式脂肪的產品和飲料
Heart Foundation
simple steps to healthier eating


Food Guide Pagoda
fats and oils, 25 g
milk and dairy products, 100 g
beans and bean products, 50 g
meat and poultry, 50–100 g
fish and shrimp, 50 g
eggs, 25–50 g
vegetables, 400–500 g
fruits, 100–200 g
cereals, 300–500 g
Source: Chinese Nutrition Society
© 2005 Encyclopædia Britannica, Inc.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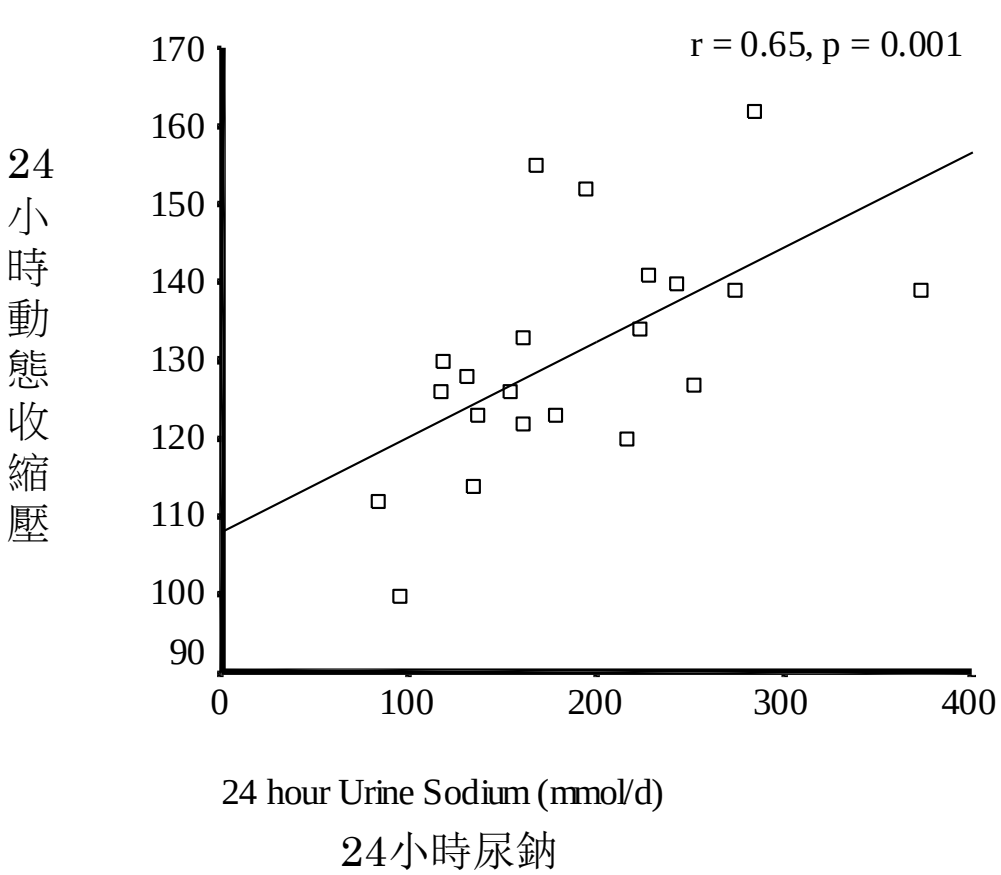
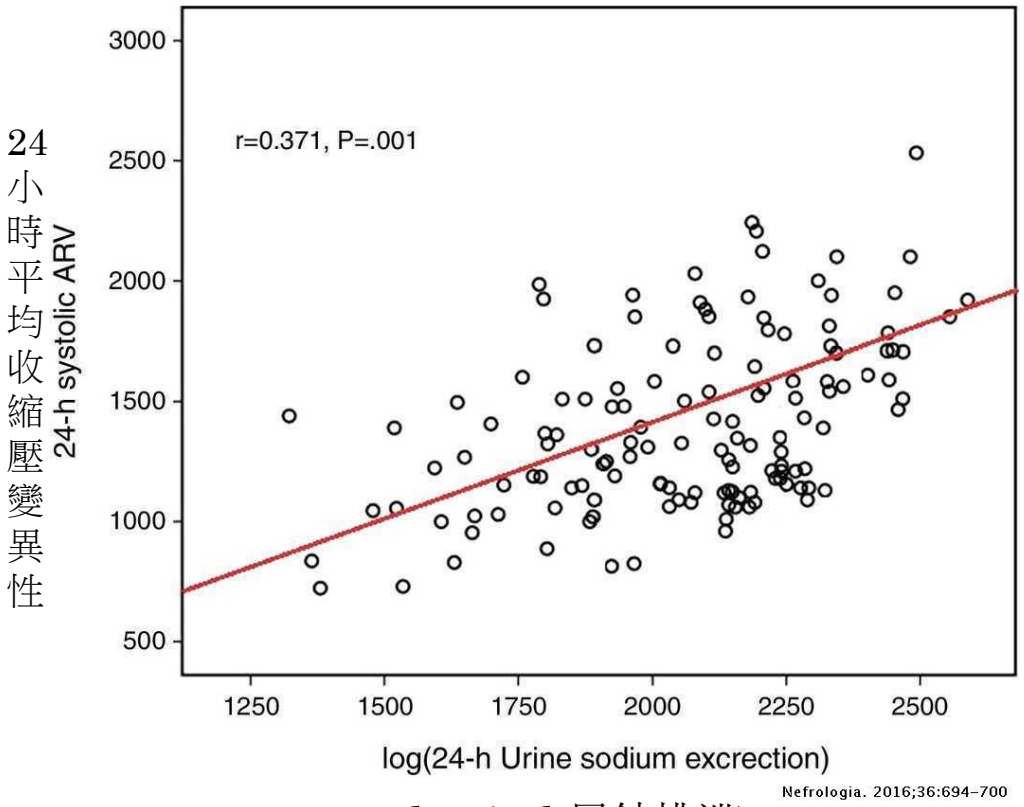
Sodium intake & blood pressure
鈉攝入量和血壓





Commonly eaten foods high in sodium content
經常食用鈉含量高的食物

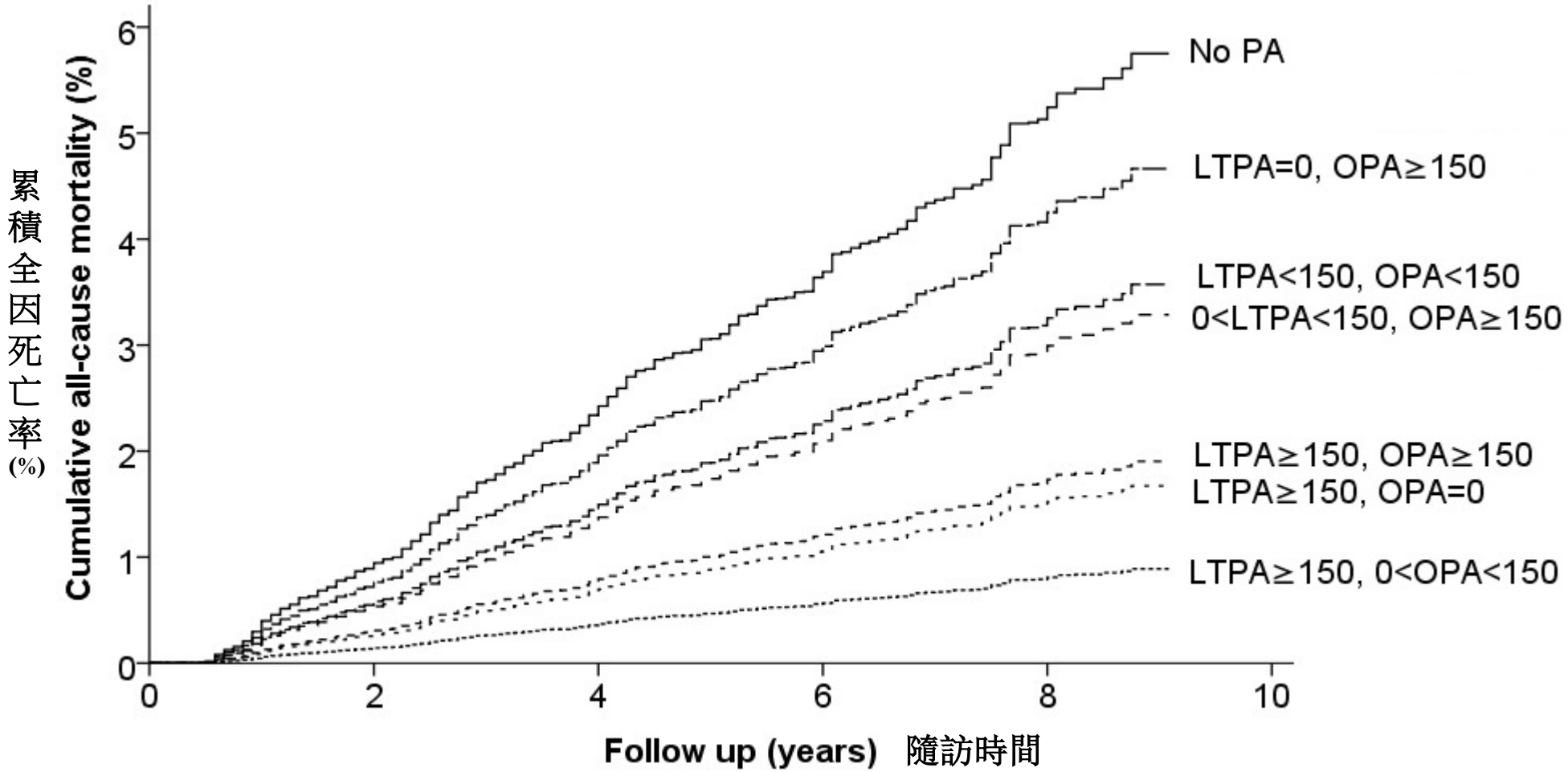
	Typical portion content (g)	Sodium (mmol)
Ham 火腿	40	23.1
Dim sum 點心	100	26.7
Marinated spare ribs 排骨	80	23.1
Chinese barbecue pork 叉燒	80	36.9
Instant noodles 即食麵	100	49.6
Fish balls 魚丸	60	17.4
Sausages 香腸	34	19.1
Fried rice 炒飯	180	23.6
Preserved vegetables 醃製蔬菜	40	37.7-140.6
Luncheon meat 午餐肉	28	16.2

ハジメの地球

Family medicine:
complementary to personalised medicine
家庭醫學：個體化醫學的補充


Recycle Bin
start
11:20 AM

Physical activity and mortality 體育活動和死亡率



LTPA leisure time physical activity 閒暇時間體育活動
OPA occupational physical activity 職業體育活動

Cheung et al. Korean Circulation J 2020

Lifestyle Modification 改善生活方式

Modification *改善方式*	*Approximate SBP reduction* *收縮壓大致降低程度*
Weight reduction 減肥	5–20 mmHg/10 kg weight loss 5-20毫米汞柱/10千克體重減輕
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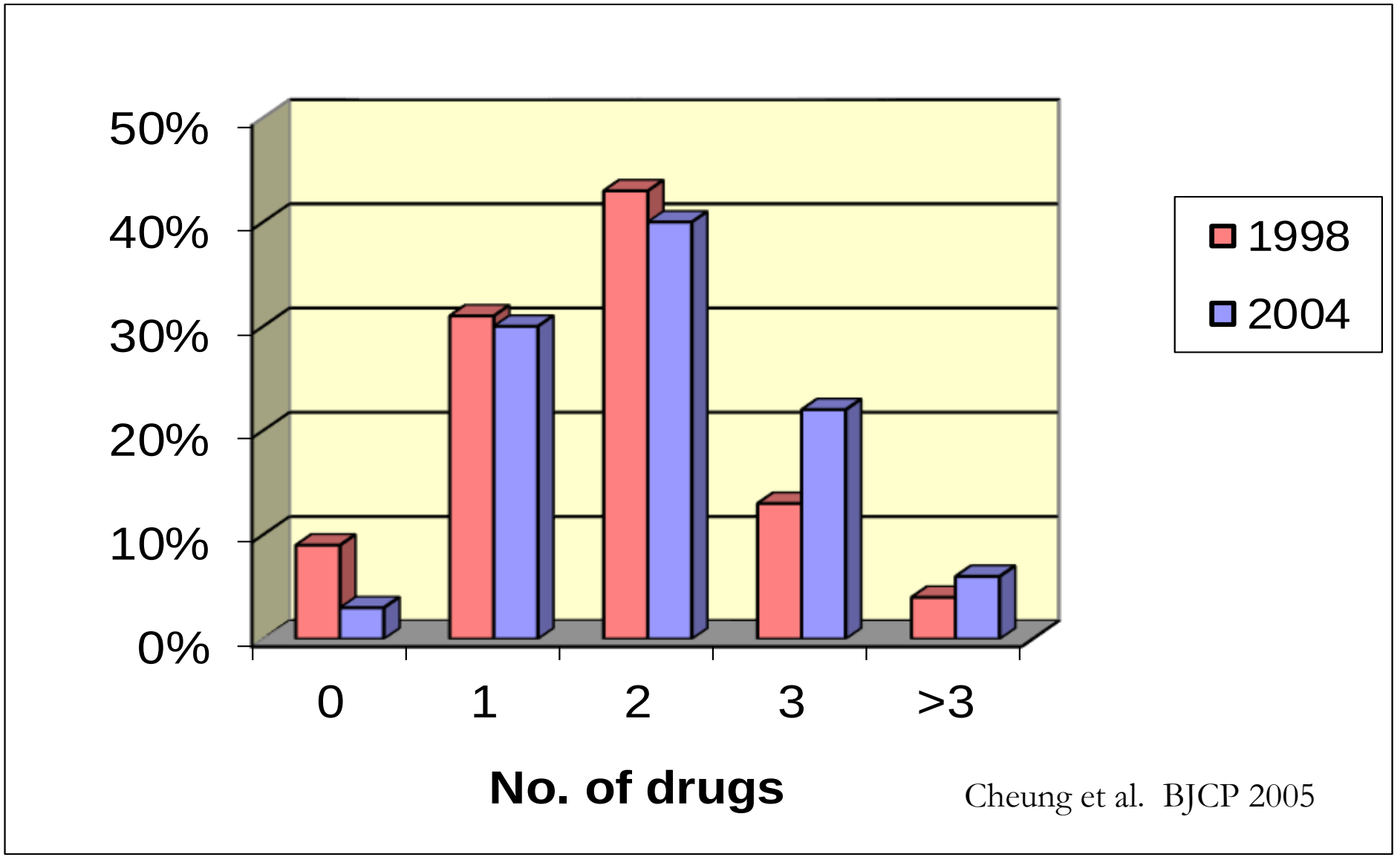
Physical activity 體育運動	4–9 mmHg 4-9毫米汞柱
Moderate alcohol consumption 適度飲酒	2–4 mmHg 2-4毫米汞柱

Number of antihypertensive drugs taken by patients in the Hypertension Clinic

高血壓病者服用的藥物數量



Cheung et al. BJCP 2005

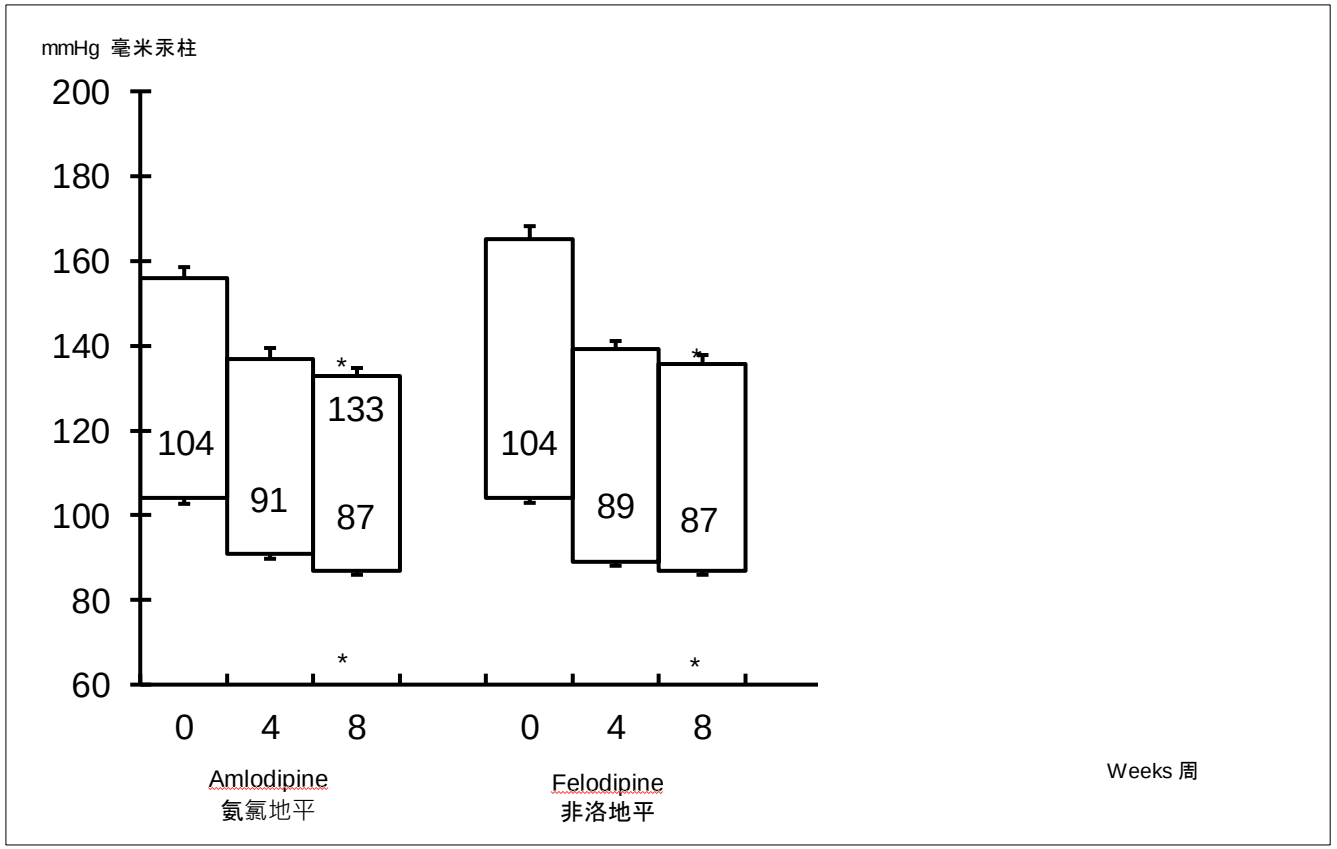
Disease 疾病	Drug Class 藥物種類				
Hypertension 高血壓	ARB	CCB	ACEI	BB	Diuretic 利尿劑
	62.1	40.3	10.7	7.5	12.8

Data are expressed as percent. 表格中的數據皆使用百分比表示

ARB, angiotensin receptor blocker 血管緊張素受體拮抗劑. CCB, calcium channel blocker鈣通道阻滯劑. ACEI, angiotensin-converting-enzyme inhibitor血管緊張素轉換酶抑制劑. BB, beta blocker β-受體阻滯劑.

Calcium channel blockers are effective in Hong Kong Chinese

鈣通道阻滯劑在香港人身上是有效的



Cheung et al. 1998

Common adverse effects of antihypertensive drugs
降壓藥的常見不良反應

Drug class 藥物種類	Adverse effects 不良反應
Alpha$_1$-adrenergic antagonist **Alpha$_1$-腎上腺素能拮抗劑**	Postural hypotension 體位性低血壓
ACE inhibitors **ACE抑製劑**	Cough, hyperkalemia, angio-oedema, creatinine rise 咳嗽，高鉀血症，血管性水腫，肌酐升高
Angiotensin receptor blockers 血管緊張素受體阻滯劑	Hyperkalemia, creatinine rise 高鉀血症，肌酐升高
Beta-adrenergic blockers **β-腎上腺素能阻滯劑**	Bradycardia, fatigue, heart block, bronchospasm, intermittent claudication, cold extremities 心動過緩，疲勞，心臟傳導阻滯，支氣管痙攣，間歇性跛行，四肢冷
Calcium channel blockers 鈣通道阻滯劑	Flushing, headache, constipation, peripheral oedema, changes in heart rate 發紅，頭痛，便秘，周圍水腫，心率變化
Diuretics, thiazide or thiazide-like 利尿劑，噻嗪或類噻嗪	Hypokalemia, hyponatremia, hyperuricaemia, postural hypotension 低鉀血症，低鈉血症，高尿酸血症，體位性低血壓

Summary
總結

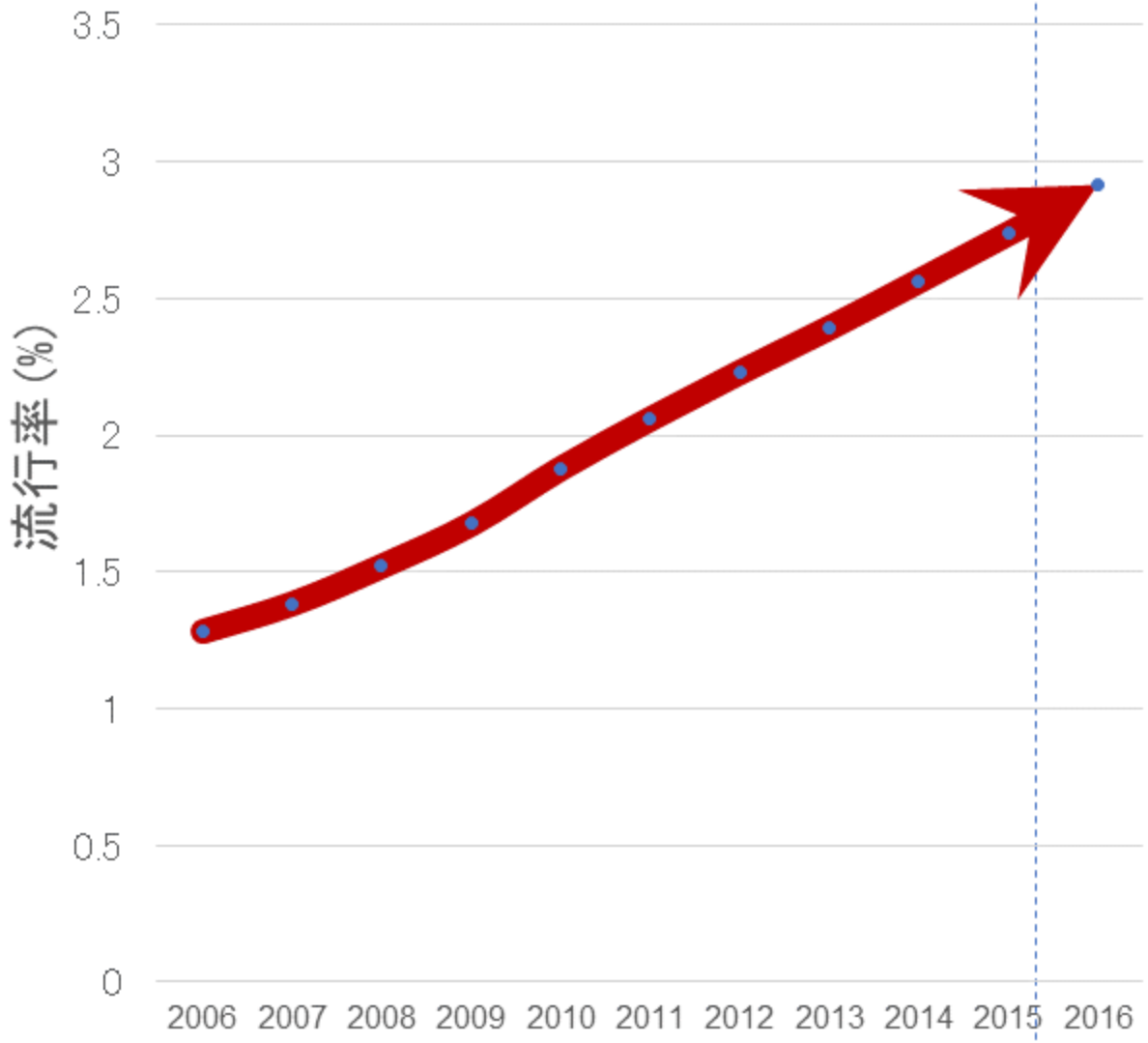
- Hypertension is common. 高血壓很常見
- Genetics can make some people more likely to develop hypertension, but the major factor is sex, age and unhealthy lifestyle 遺傳因素可使某些人更容易患上高血壓，但主要的影響因素是性別、年齡和不健康的生活方式
- Using a combination of drugs, blood pressure is not hard to control in most patients 通過藥物聯合治療，大多數患者的血壓並不難控制
- Ask your doctor if you have questions about side effects 如果您對副作用有疑問，請咨詢您的醫生
- Lifestyle changes may prevent hypertension or make it easier to treat 生活方式的改變可以預防高血壓或使其更容易治療
- Healthy diet and regular physical activity are beneficial, not just for the hypertensive patient but the whole family 健康的飲食習慣和規律的體育鍛煉不僅對高血壓患者有益，而且對整個家庭有益

如何正確治療痛風

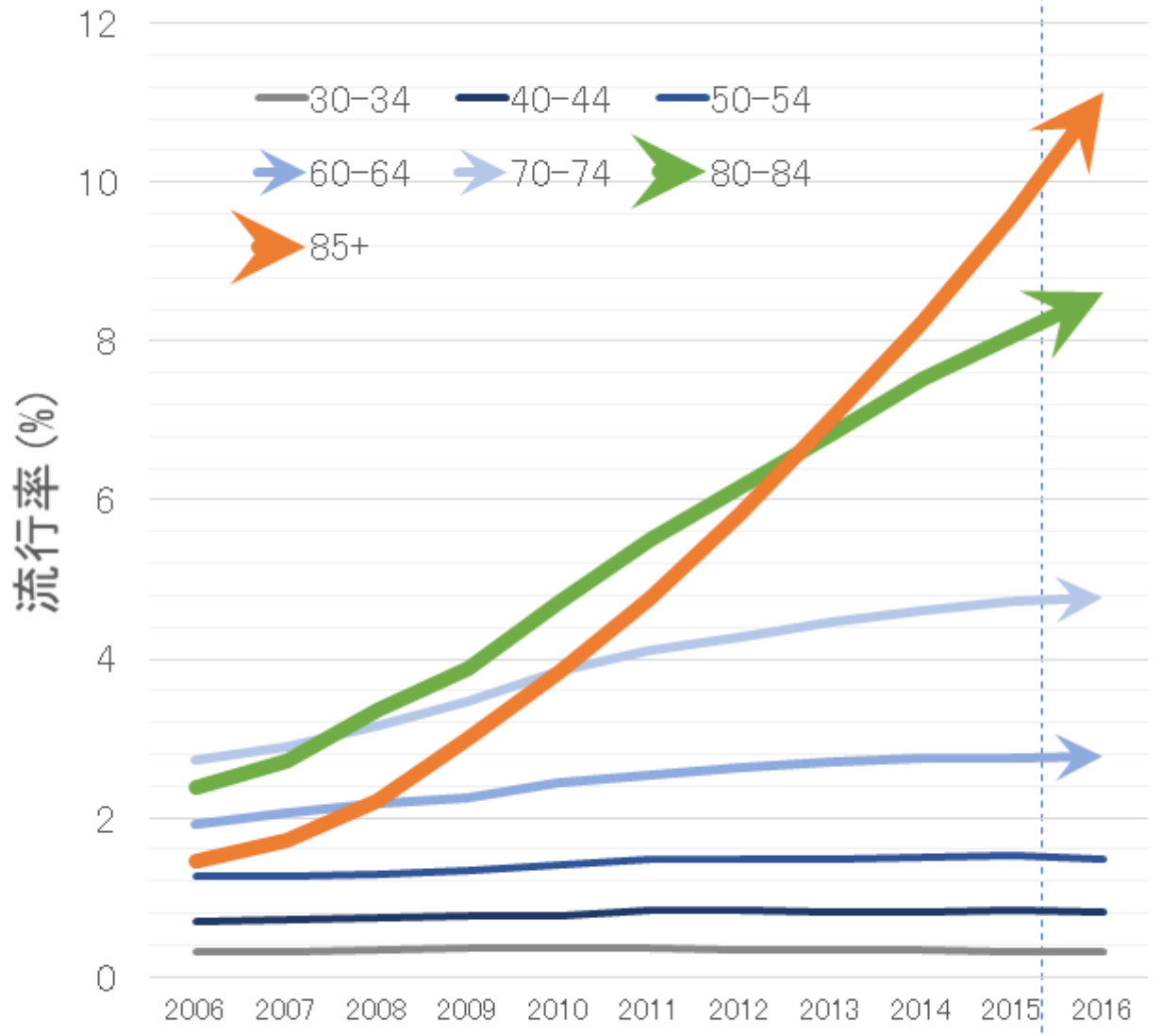
張錚醫生

香港大學李嘉誠醫學院內科學系
名譽臨床助理教授

痛風在香港的趨勢


3.5
3
2.5
2
1.5
1
0.5
0
流行率 (%)
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

年齡與痛風趨勢的關係


12
10
8
6
4
2
0
流行率 (%)
30-34
40-44
50-54
60-64
70-74
80-84
85+
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

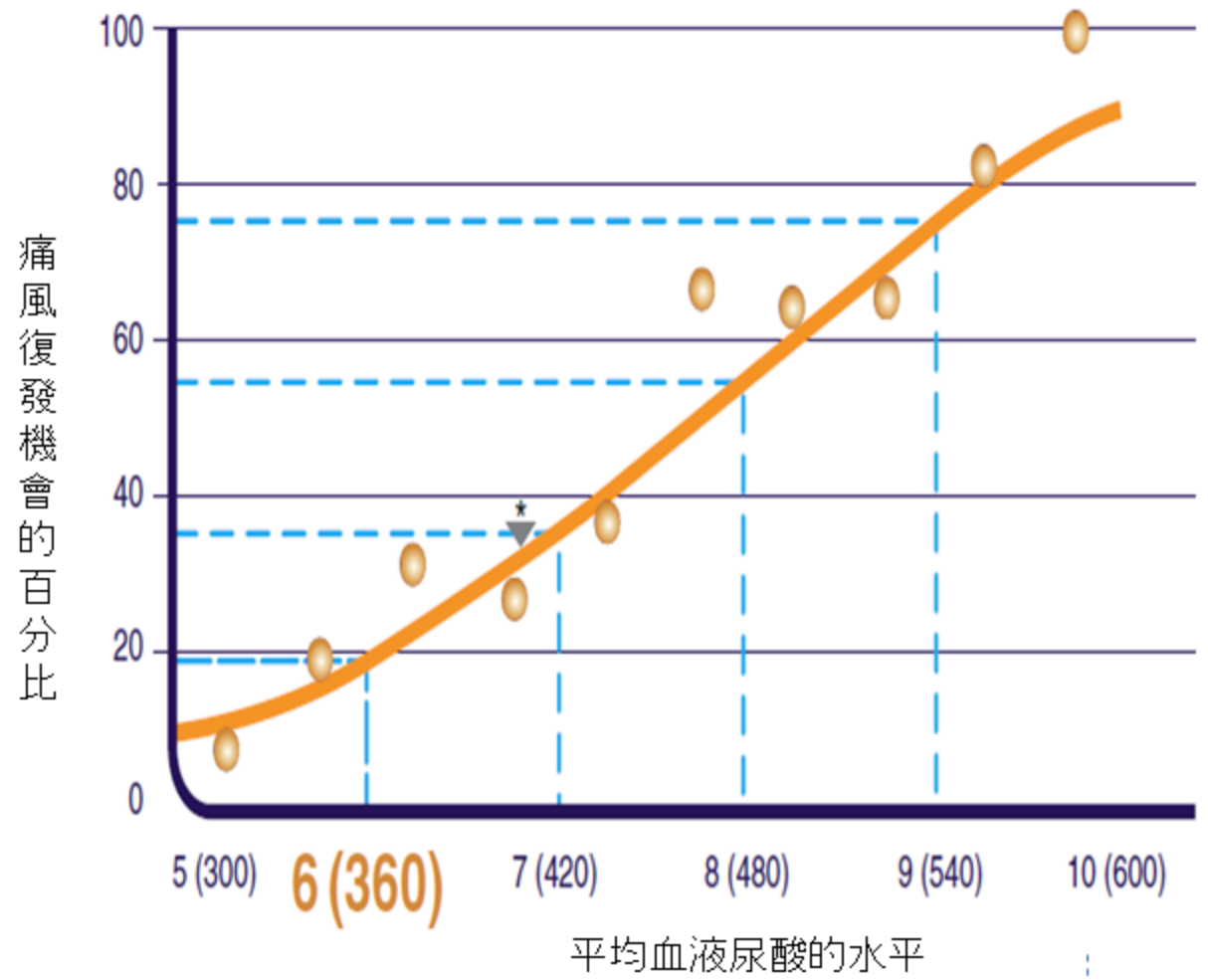
痛風患者的男女比例

40歲以下

80歲以上


痛風的成因
Uric acid crystals

尿酸水平和痛風的關係


痛風復發機會的百分比
100
80
60
40
20
0
5 (300)
6 (360)
7 (420)
8 (480)
9 (540)
10 (600)
平均血液尿酸的水平

除高尿酸外，還有其他導致痛風的因素嗎？

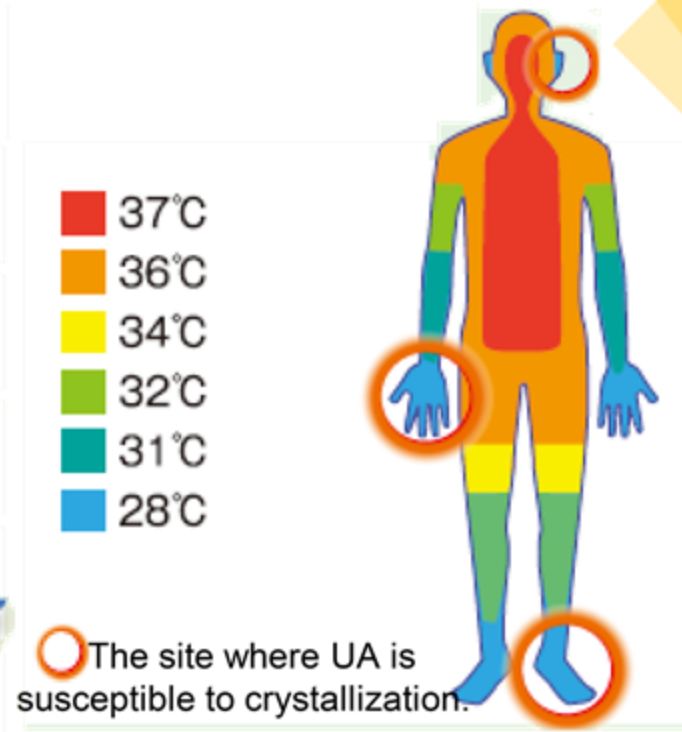
痛風的成因

痛風的症狀

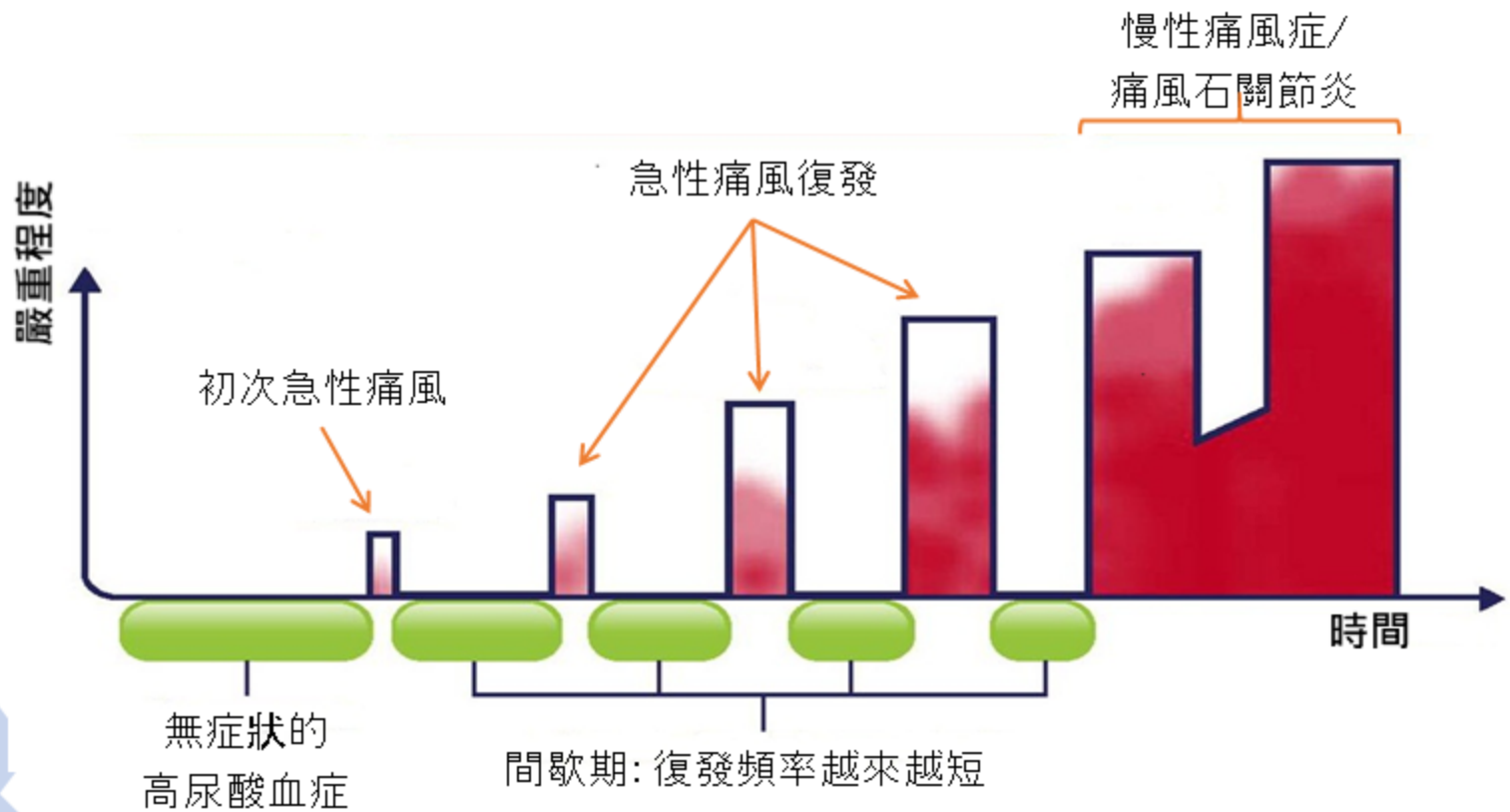
尿酸的溶解度

溫度	溶解度
37°C	6.8 mg/dL
35°C	**6.0 mg/dL**
30°C	4.5 mg/dL
25°C	**3.3 mg/dL**
20°C	2.5 mg/dL
15°C	**1.8 mg/dL**
10°C	1.2 mg/dL

Less soluble



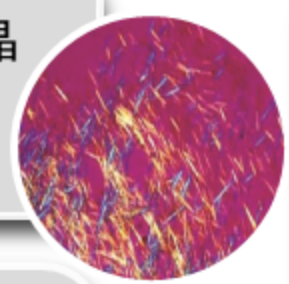
痛風演變的過程



痛風的診斷（>8）

關節液或滑囊液中有尿酸結晶

尿酸石



臨床特徵

部位

腳踝和中足 1

腳指公 2

特徵

紅腫 1

不能觸碰 1

不能活動關節1

時間（其中兩項）

最大痛楚度<24小時

14天內痊愈

關節炎可完全消失

典型發病情況 1

重複發病情況

出現尿酸石 4

生物樣本

血液尿酸水平

<4mg/dL -4

6-8mg/dL 2

8-10mg/dL 3

10mg/dL 4

關節液檢驗

不含尿酸結晶 -4

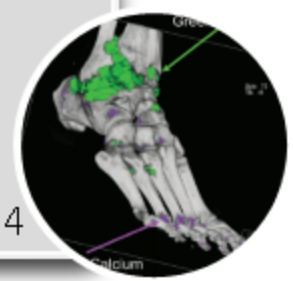
影像掃描

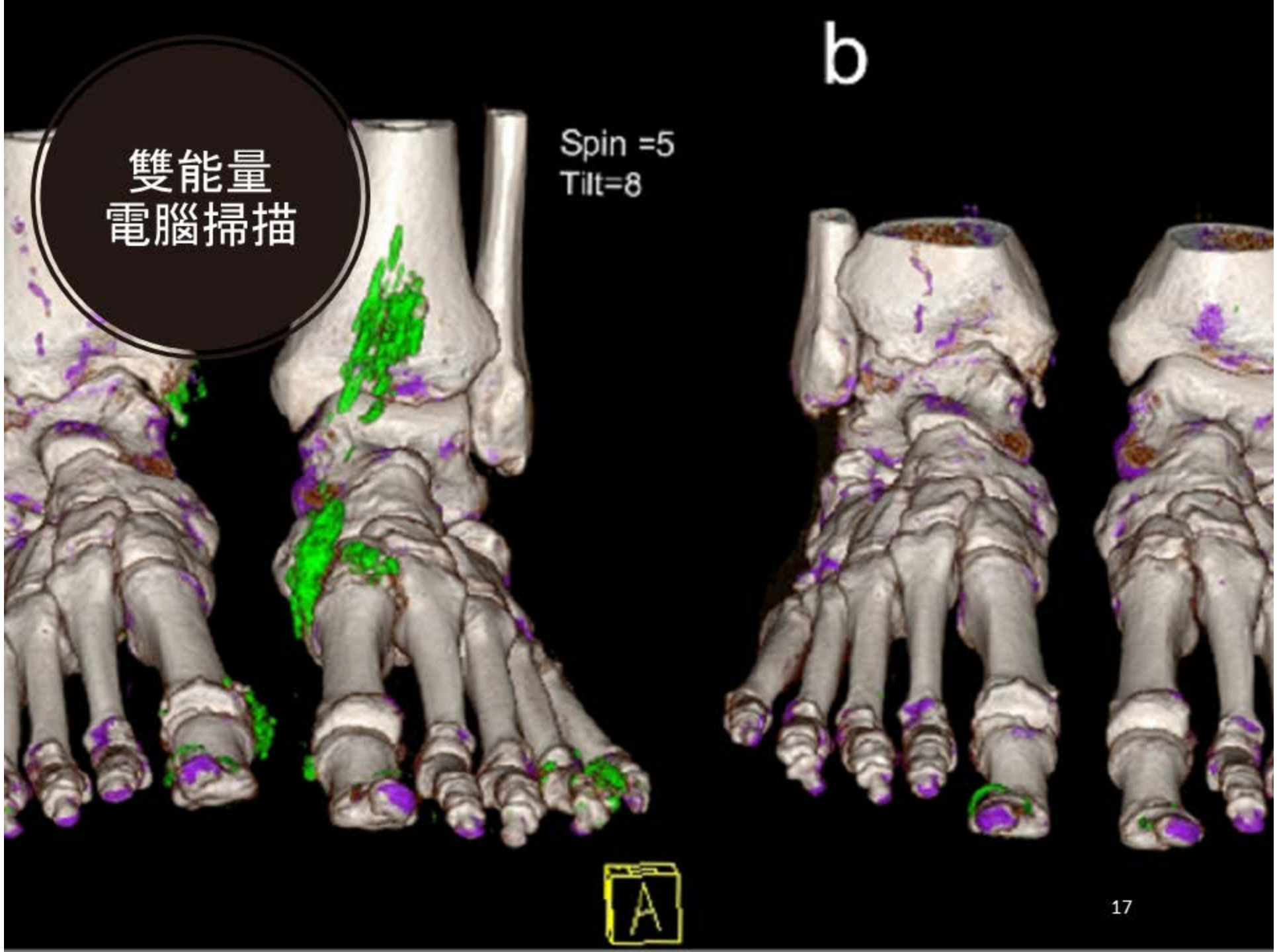
存有尿酸結晶 4

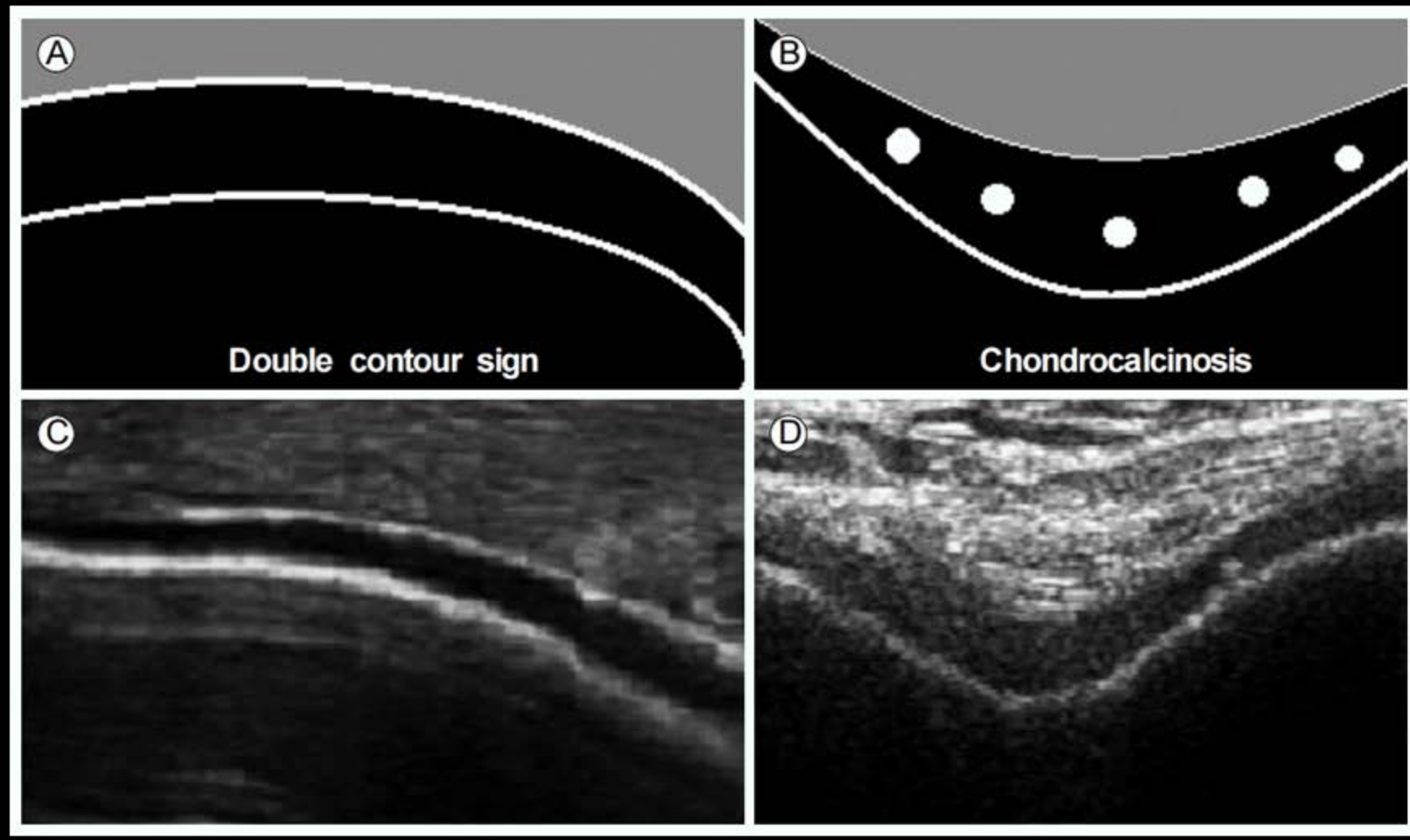
超聲波

雙能量電腦掃描

出現典型的關節破壞 4




雙能量
電腦掃描
Spin =5
Tilt=8
b
A

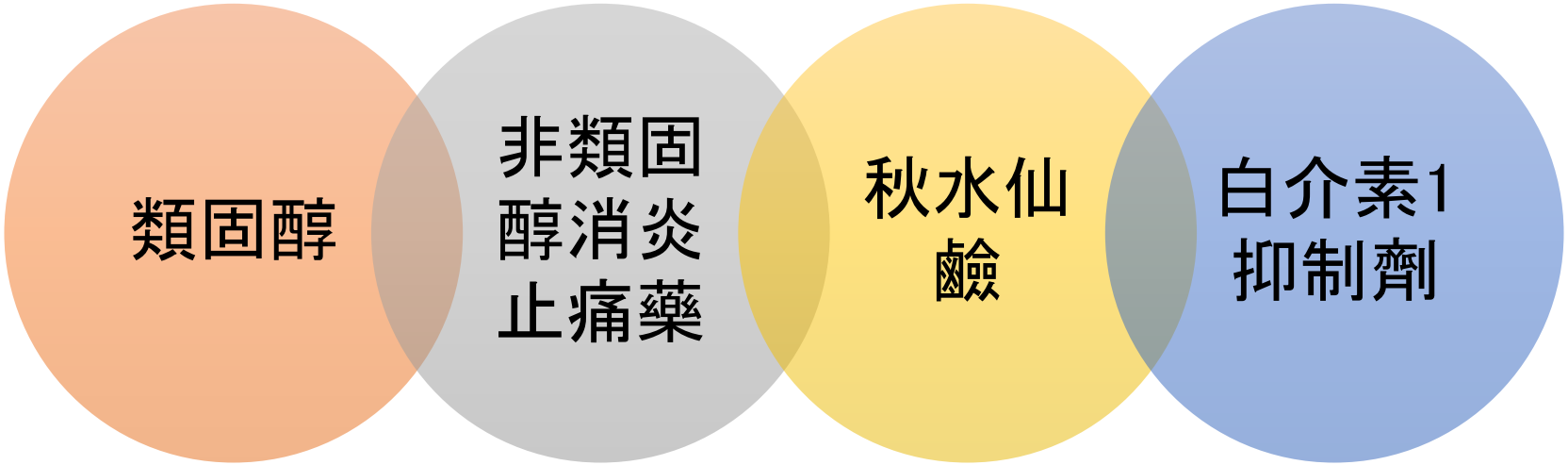


超聲波

急性痛風的治療

消炎

治療痛風的藥物



藥物的副作用是選擇的關鍵

非類固醇消炎止痛藥

- 胃炎、胃潰瘍、胃出血
- 影響腎功能
- 增加心血管病的風險

秋水仙鹼

- 與其他藥物有相互作用
- 腎功能差可增加藥物副作用的風險

降尿酸

何時需要服用降尿酸藥物？

一年有多於一次痛風

出現尿酸石

尿酸腎石

40歲前患有急性痛風

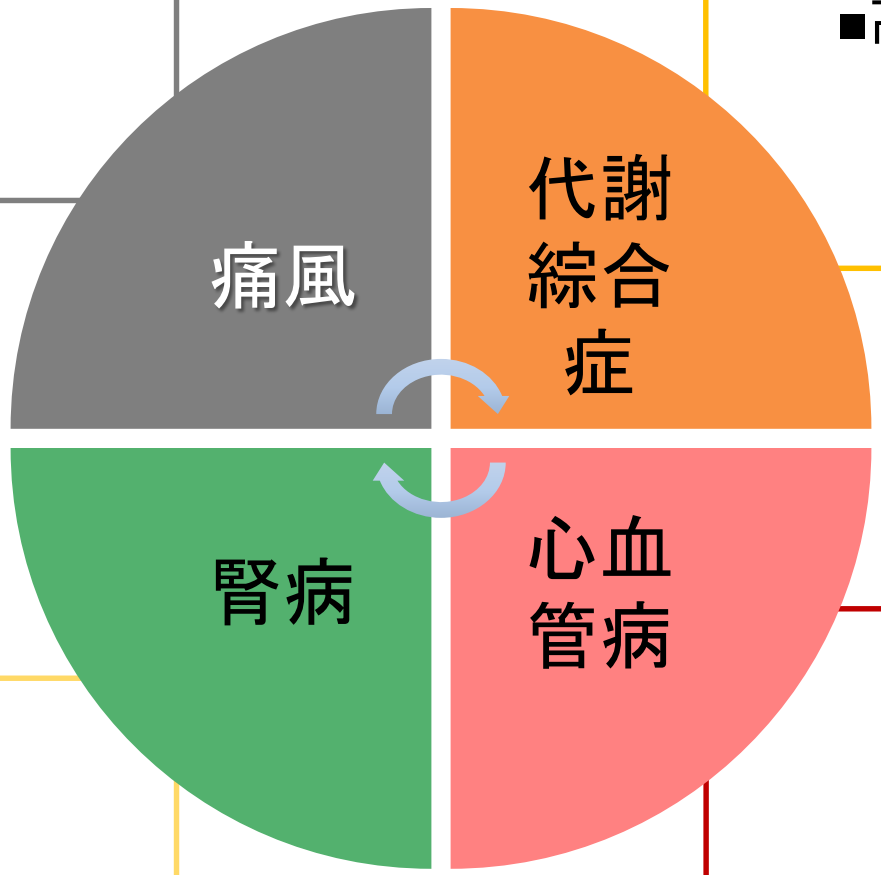
血尿酸濃度＞8mg/dl

患有痛風的共病

痛風的共病

■慢性發炎
■關節破壞

■高血壓　高血脂
■糖尿病　肥胖



■腎石
■慢性腎衰竭

■中風　冠心病
■心律不整
心臟衰竭

有關高尿酸的其他不良影響

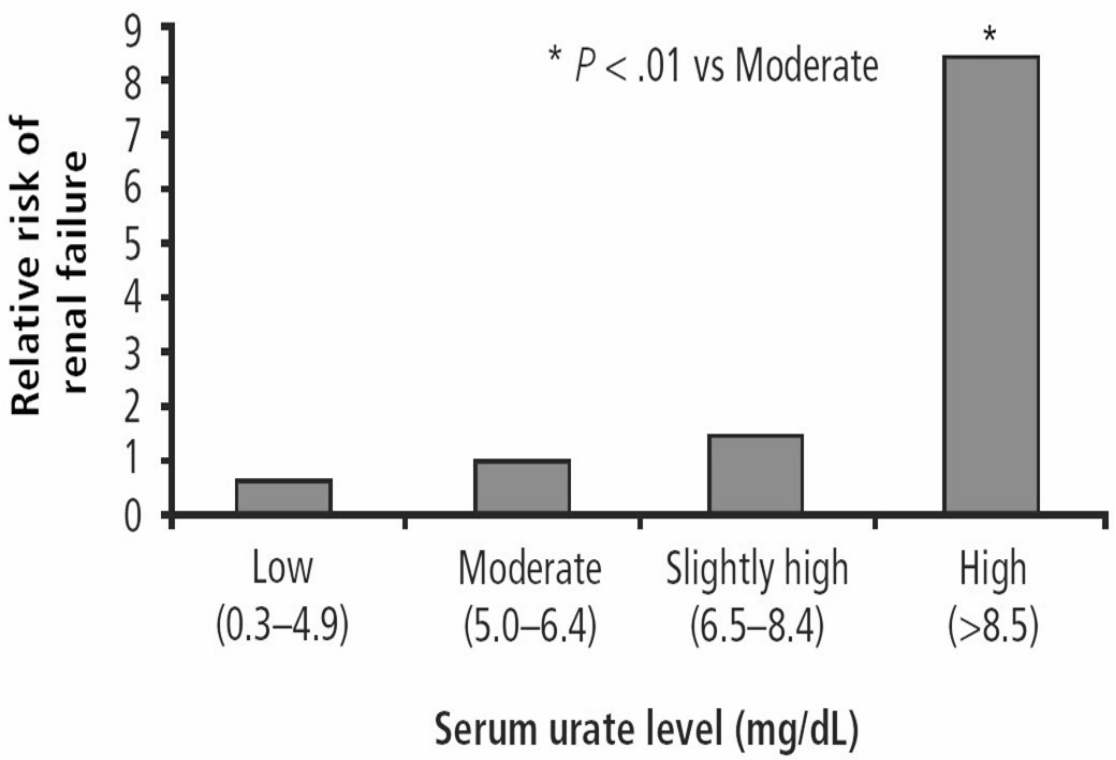
尿酸值每高出1mg/dL，高血壓風險增加13%

患心血管病的風險增加46%

因心血管病的死亡率增加34%

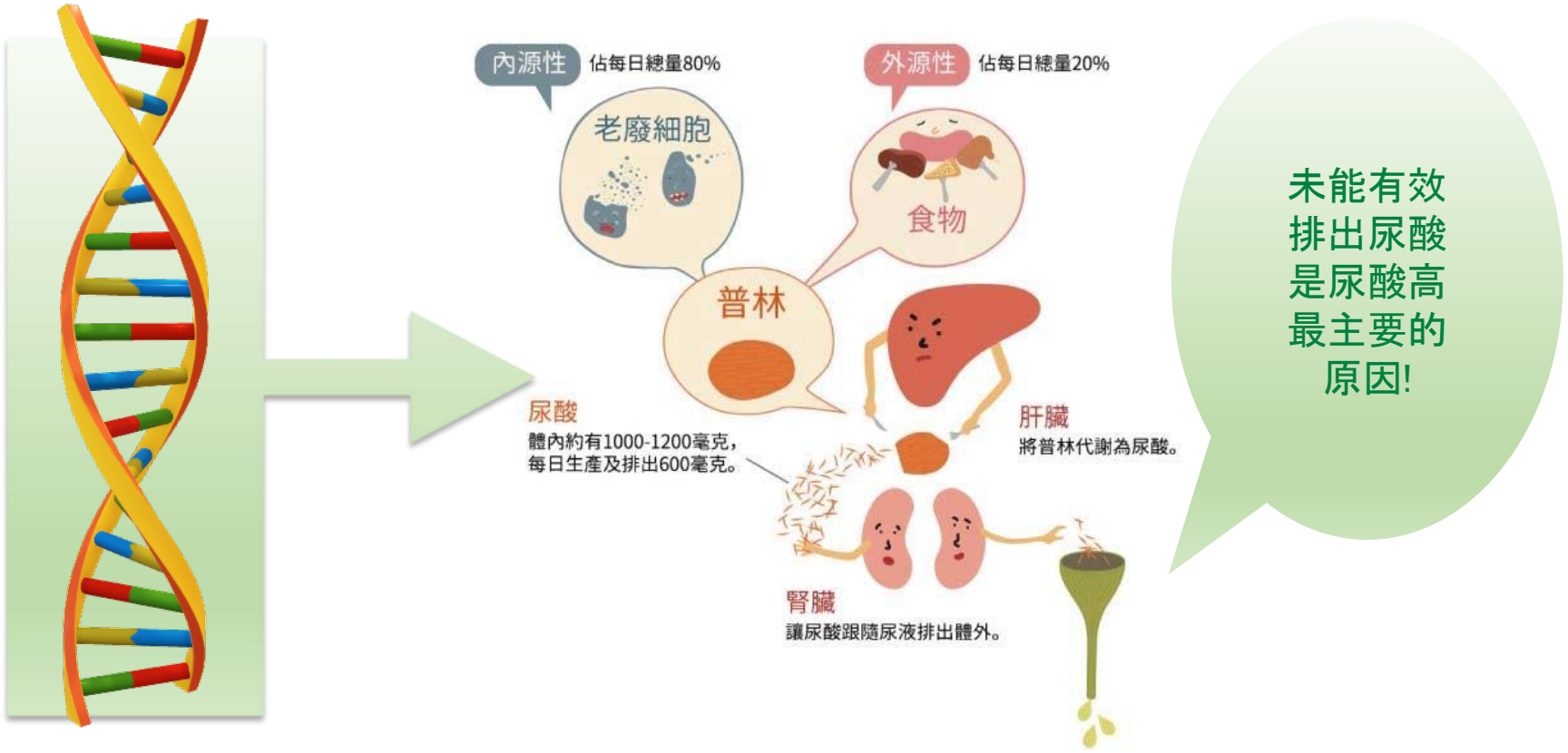
患中風的風險增加41%

高尿酸增加腎衰竭的風險



戒口可減低痛風發作，
但不能有效降低血尿酸的水平

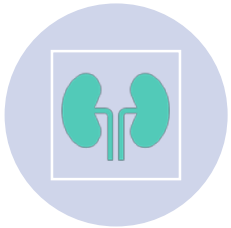
嘌呤在體內的新陳代謝



未能有效排出尿酸是尿酸高最主要的原因!

減低尿酸排出的原因

遺傳



腎功能衰退

肥胖

藥物

降尿酸藥物

- 別嘌醇
- 非布司他
- 丙磺舒

別嘌醇

嚴重藥物敏感

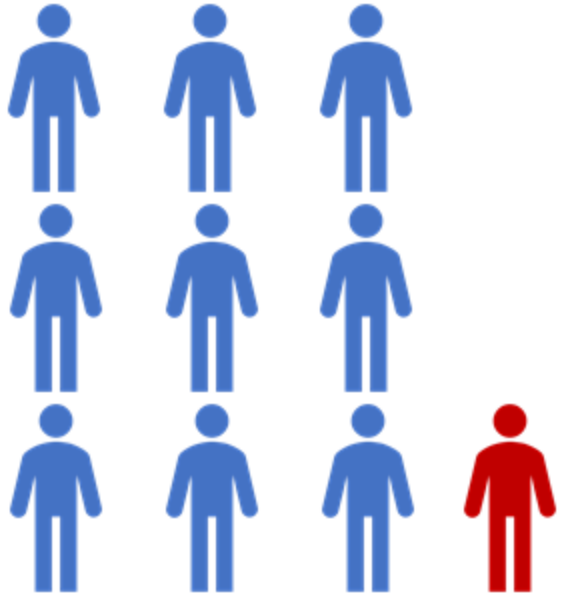
遺傳基因測試

別嘌醇敏感

遺傳基因是對別嘌醇敏感最主要的原因

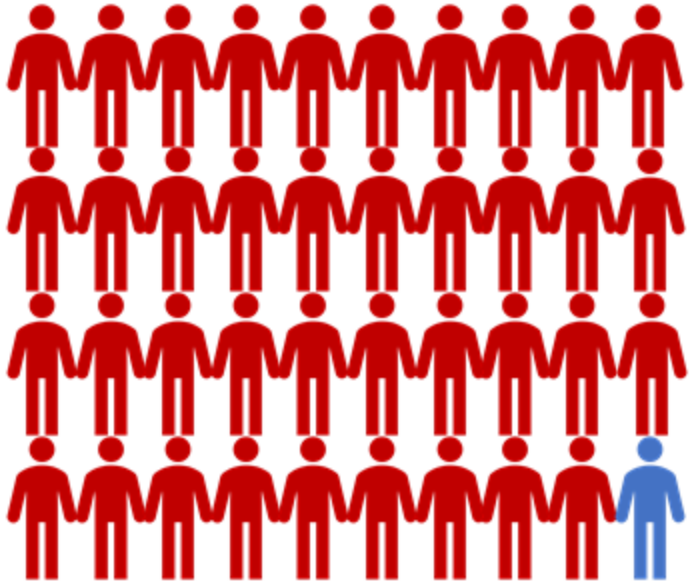
在中國人中有

HLA-B*5801的機會



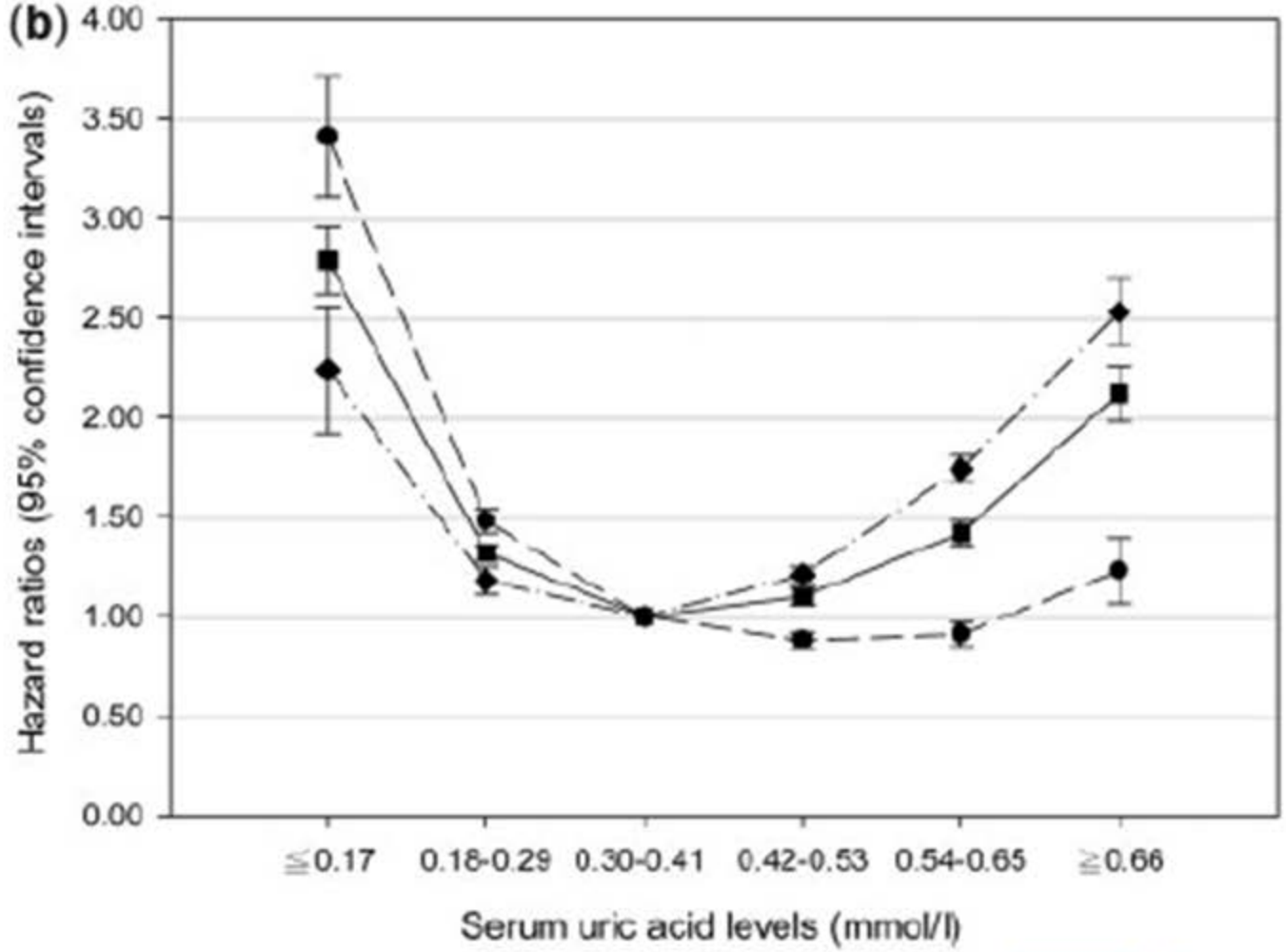
對別嘌醇敏感患者中有

HLA-B*5801的機會

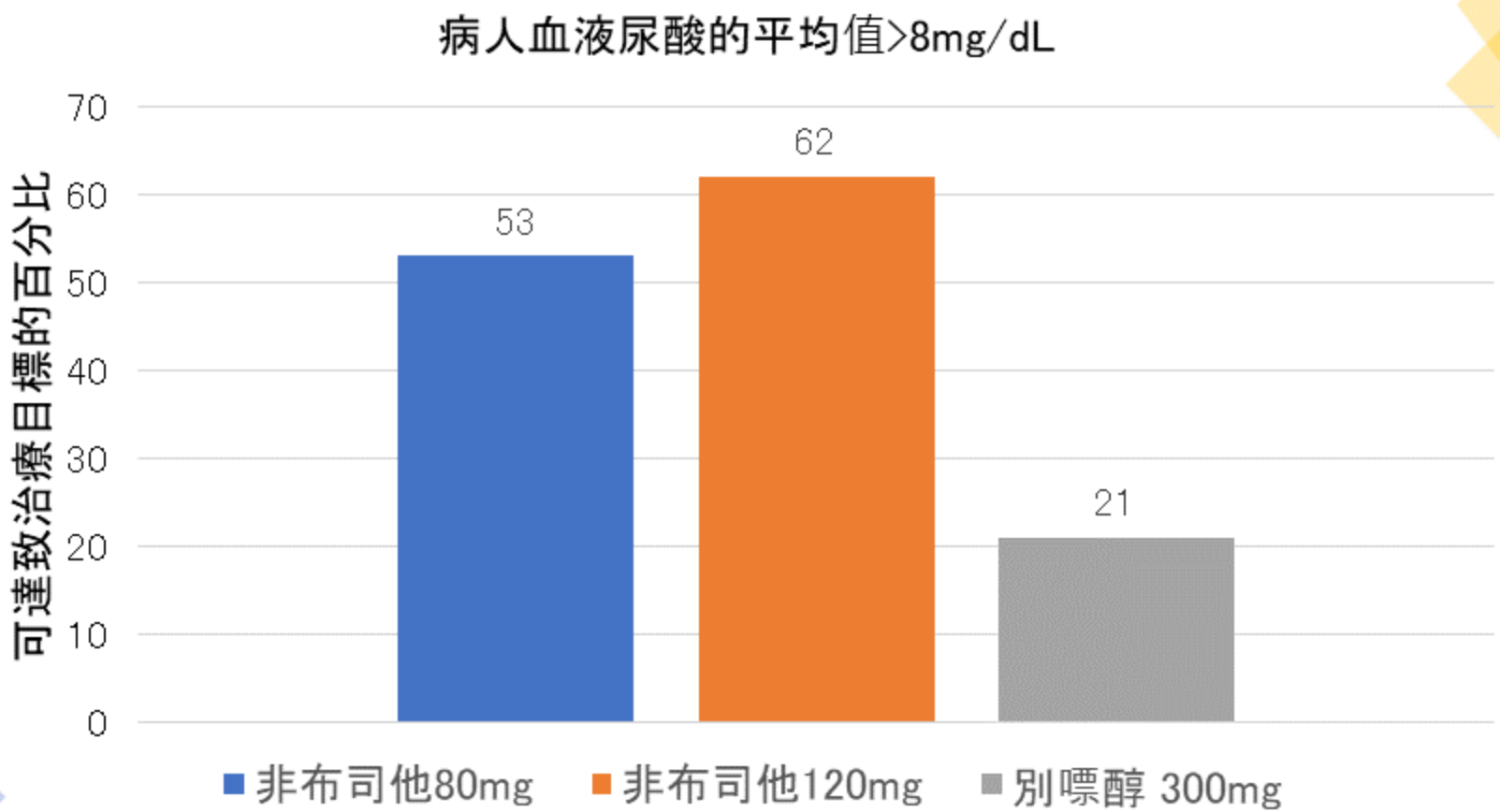


血液尿酸水平應控制在
6mg/dL或360mmol/L以下

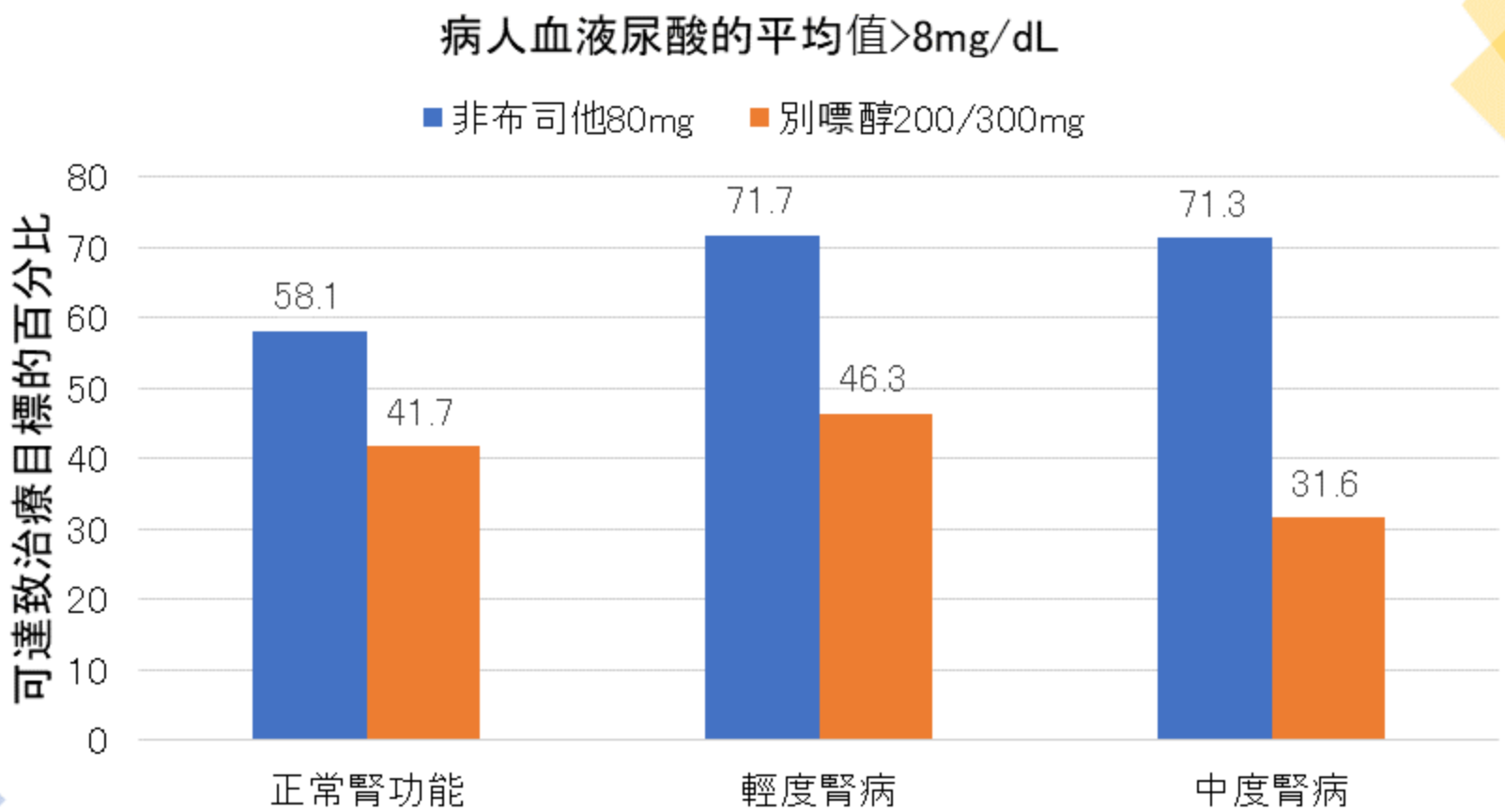
血尿酸水平和死亡率的關係



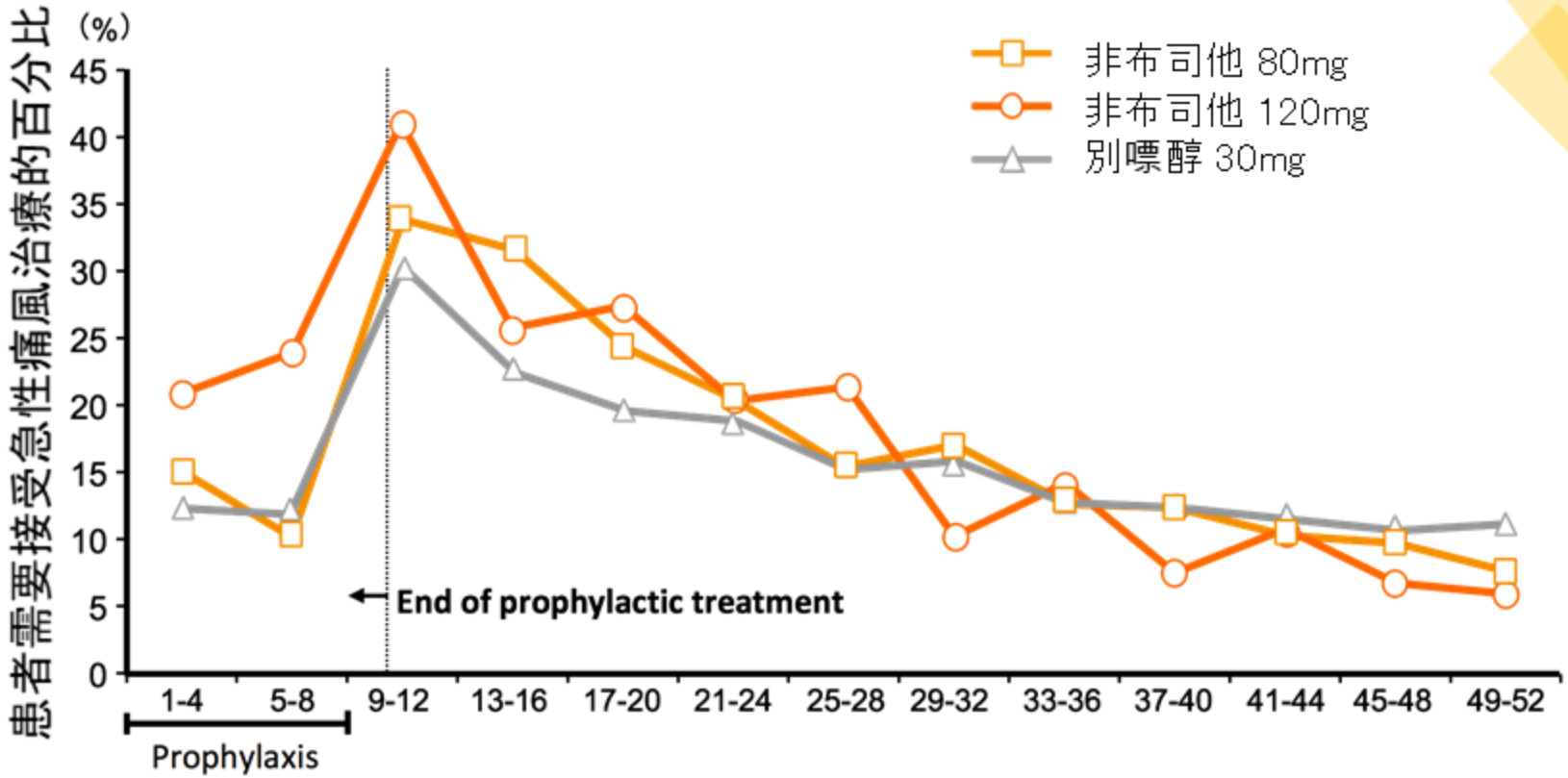
別嘌醇與非布司他的比較



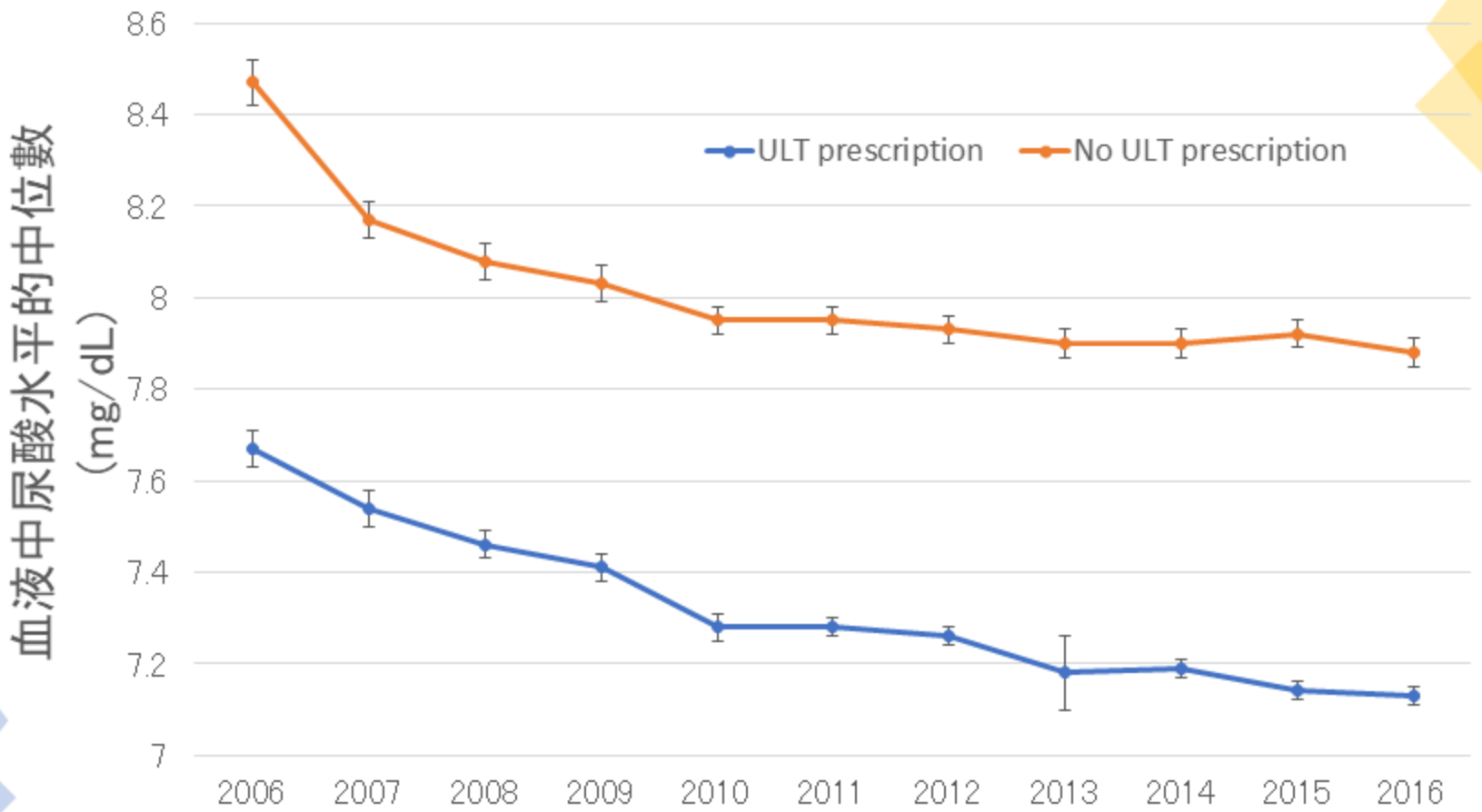
別嘌醇與非布司他的比較



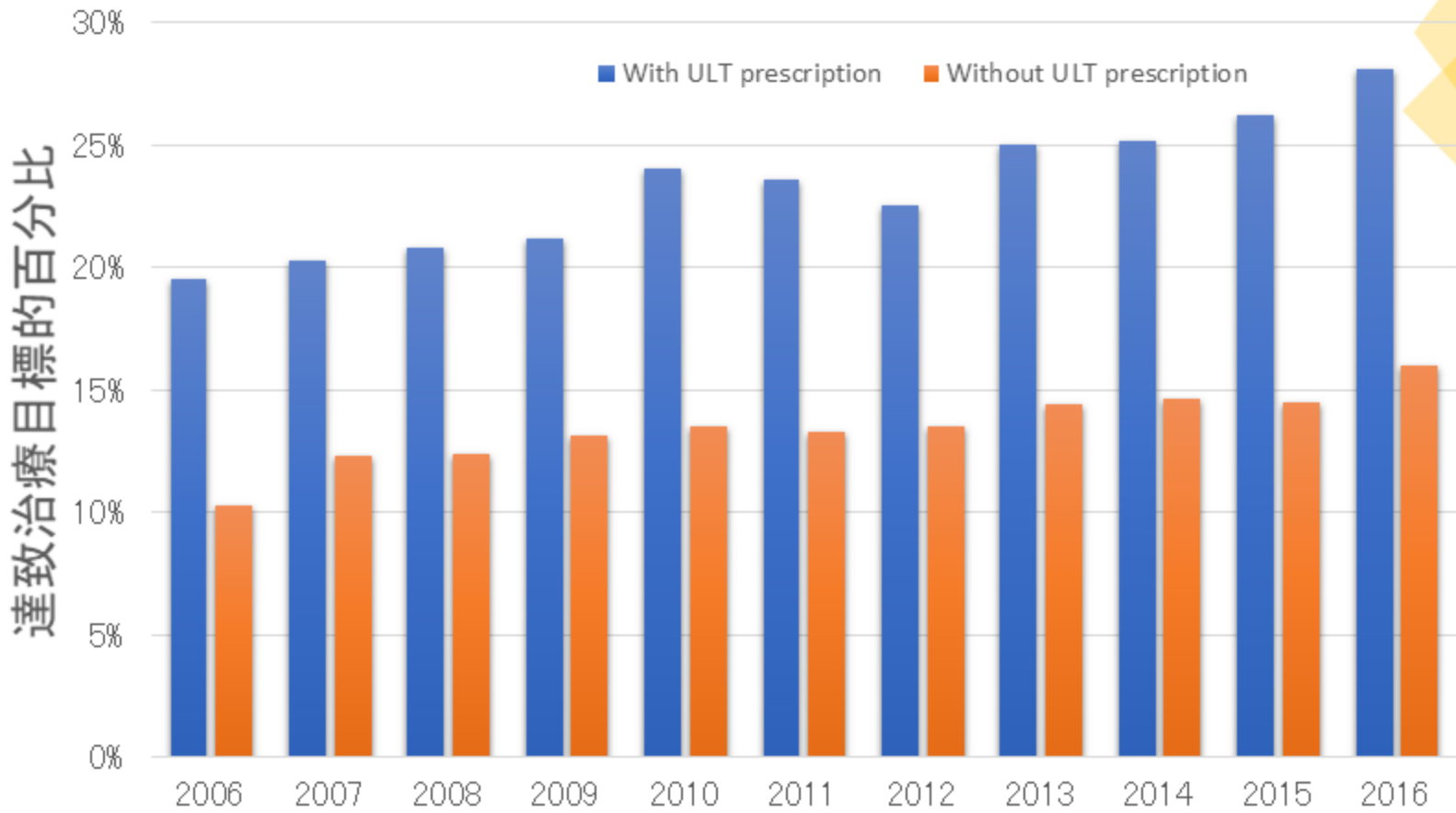
服用了降尿酸藥仍有痛風發作？



香港痛風患者的尿酸水平



痛風患者控制尿酸的情況



降尿酸藥對共病的好處

有助減低血壓

減低心肌梗塞的機會20%

增強慢性心血管病患者的心臟功能

舒緩心臟衰竭的病情

減低心臟衰竭的死亡率26%

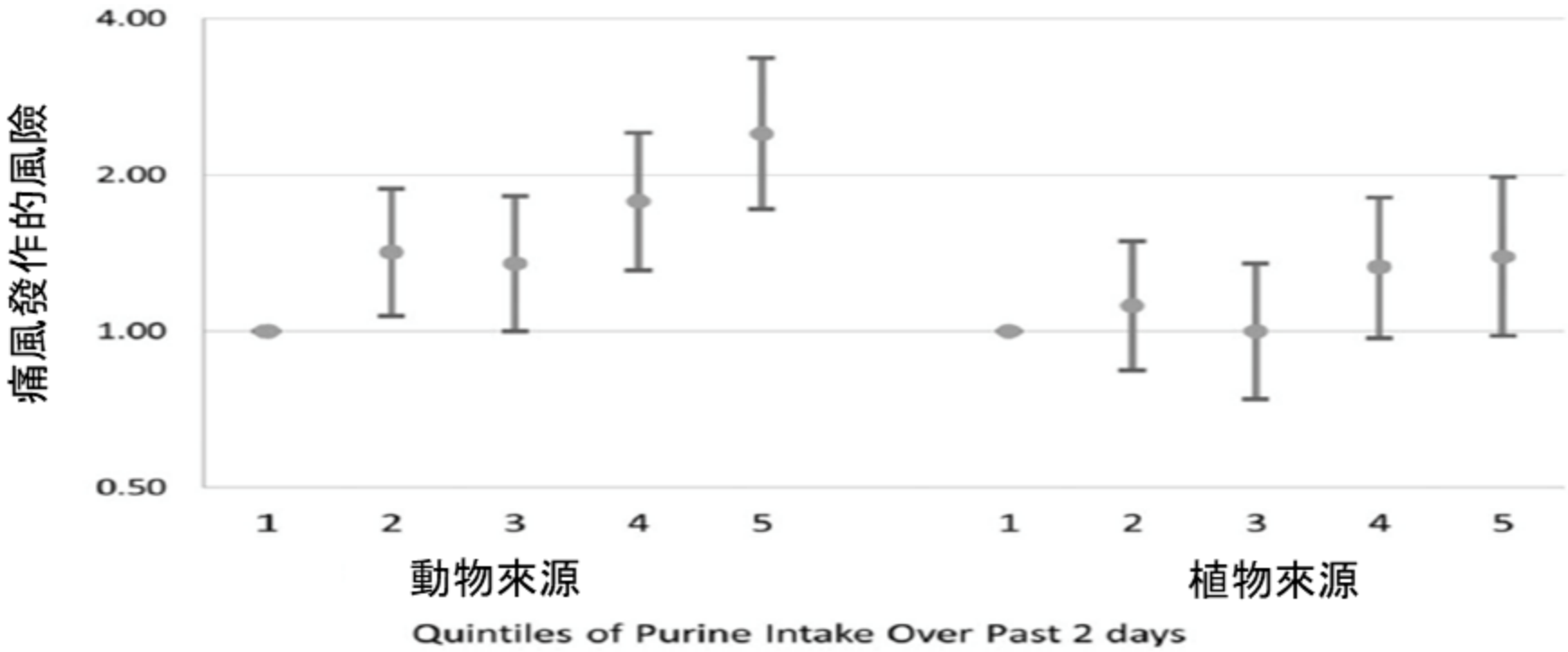
防止腎功能進一步衰退

如何有效預防痛風發作

血尿酸降至治療目標

適當的飲食控制

適當的飲食控制


痛風發作的風險
4.00
2.00
1.00
0.50
1
2
3
4
5
1
2
3
4
5
動物來源
植物來源
Quintiles of Purine Intake Over Past 2 days

總結

- 戒口可減低痛風發作，但不能有效降低血液尿酸的水平
- 痛風患者應盡早長期服用降尿酸藥
- 長期服用降尿酸藥可以降低心血管病和慢性腎病的風險
- 血液尿酸水平應控制在6mg/dL或360mmol/L以下