個案報告

前回春藥局
陳雅德藥師

個案基本資料

- 姓名：韓邱 xx
- 年齡：84歲
- 性別：女
- 居住地：土城市
- 居住狀況：與兒子同住
- 生理狀況：有中度視覺障礙、可自行行動、可正常吞嚥

第一次訪視

時間：99年3月17日 2:30pm~3:30pm

- **建立用藥資料：**

  藥品過敏史：＿＿無＿＿

  藥品不良反應既往史：＿無＿

  服藥狀況：■ 可自行吞服錠劑或膠囊

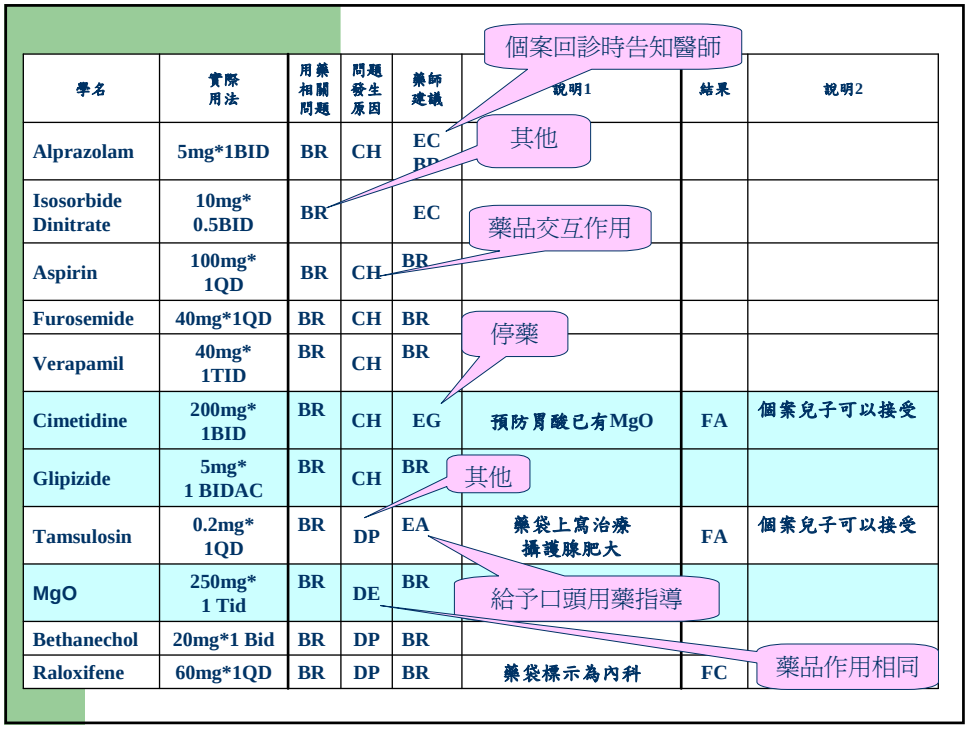
  □ 藥品須磨粉 □ 管灌給藥

- **檢視藥品儲存狀況：**

  藥品儲存地點＿客廳桌下＿

  藥品儲存環境□恰當 ■待改善 □藥師協助改善 □已改善

醫療院所/科別/醫師	調劑處所	商品名	學名	含量/劑型	劑量/用法	實際用法
亞東醫院 心臟血管科 葉東峰	亞東醫院	Alpraline	Alprazolam	0.5mg/tab	0.5mg*1BID	0.5mg*1BID
		Isobide	Isosorbide Dinitrate	10mg/tab	10mg*0.5BID	10mg*0.5BID
		Espin	Aspirin	100mg/cap	100mg*1QD	100mg*1QD
		Rasitol	Furosemide	40mg/tab	40mg*1QD	40mg*1QD
		Verapamil	Verapamil	40mg/tab	40mg*1TID	40mg*1TID
		Ciketin	Cimetidine	200mg/tab	200mg*1BID	200mg*1BID
亞東醫院 新陳代謝科 陳華芬	亞東醫院	Glidiab	Glipizide	5mg/tab	5mg*1 BIDAC	5mg*1 BIDAC
亞東醫院 泌尿科邱斌	亞東醫院	Tamlosin	Tamsulosin	0.2mg/cap	0.2mg*1QD	0.2mg*1QD
		MgO	MgO	250mg/tab	250mg*1 Tid	250mg*1 Tid
		Dampurin	Bethanechol	25mg/tab	20mg*1 Bid	20mg*1 Bid
亞東醫院 骨科	微笑埔墘藥局	Evista	Raloxifene	60mg/tab	60mg*1QD	60mg*1QD



學名	實際用法	用藥相關問題	問題發生原因	藥師建議	說明1	結果	說明2
Alprazolam	5mg*1BID	BR	CH	EC BR			
Isosorbide Dinitrate	10mg* 0.5BID	BR		EC			
Aspirin	100mg* 1QD	BR	CH	BR			
Furosemide	40mg*1QD	BR	CH	BR			
Verapamil	40mg* 1TID	BR	CH	BR			
Cimetidine	200mg* 1BID	BR	CH	EG	預防胃酸已有MgO	FA	個案兒子可以接受
Glipizide	5mg* 1 BIDAC	BR	CH	BR			
Tamsulosin	0.2mg* 1QD	BR	DP	EA	藥袋上寫治療攝護腺肥大	FA	個案兒子可以接受
MgO	250mg* 1 Tid	BR	DE	BR			
Bethanechol	20mg*1 Bid	BR	DP	BR			
Raloxifene	60mg*1QD	BR	DP	BR	藥袋標示為內科	FC	

交互作用藥品	相關品名	危害等級	作用速度	嚴重程度	文獻記載
		Significance	Onset	Severity	Document
1 Glipizide <==> Furosemide _	_	5	Delayed	Minor	Possible
泌樂得錠５公絲（格力匹來） <==> 來喜妥錠４０公絲（服樂泄麥）					
2 Glipizide <==> Cimetidine _	_	4	Delayed	Moderate	Possible
泌樂得錠５公絲（格力匹來） <==> 喜潰治錠４００公絲					
3 Glipizide <==> Aspirin _	_	2	Delayed	Moderate	Probable
泌樂得錠５公絲（格力匹來） <==> "永勝" 安心平腸溶微粒膠囊１００毫克（阿斯匹林）					
4 Verapamil <==> Cimetidine _	_	5	Rapid	Moderate	Unlikely
必得命糖衣錠４０公絲（唯律脈必利） <==> 喜潰治錠４００公絲					
5 Furosemide <==> Aspirin _	_	5	Delayed	Minor	Possible
來喜妥錠４０公絲（服樂泄麥） <==> "永勝" 安心平腸溶微粒膠囊１００毫克（阿斯匹林）					
6 Cimetidine <==> Alprazolam _	_	3	Rapid	Minor	Probable
喜潰治錠４００公絲 <==> "信東" 安柏寧錠０．５公絲					

Sulfonylureas

Chlorpropamide (eg,Diabinese)
Glimepiride (eg,Amaryl)
Glipizide (eg,Glucotrol)
Glyburide (eg,DiaBeta)
Tolazamide
Tolbutamide (eg,Orinase)

Loop Diuretics

Bumetanide (eg,Bumex)
Ethacrynic Acid (eg,Edecrin)
Furosemide (eg,Lasix)

Significance	Onset	Severity	Documentation
5	☆ Rapid ★ Delayed	☆ Major ☆ Moderate ★ Minor	☆ Established ☆ Probable ☆ Suspected ★ Possible ☆ Unlikely

Effects: LOOP DIURETICS may decrease glucose tolerance, resulting in hyperglycemia in patients previously well controlled on SULFONYLUREAS.

Mechanism: Unknown.

Management: The present data do not suggest that any alteration in therapy is necessary.

Discussion: Although some data suggest that loop diuretics are capable of causing hyperglycemia or altered carbohydrate metabolism, other studies report no significant alteration in blood sugar or carbohydrate metabolism.1-9No studies have been published that specifically examine the effect of the addition of a loop diuretic to the regimen of a non-insulin-dependent diabetic patient controlled on a sulfonylurea. Such controlled trials are necessary to clarify the importance of this interaction.

Sulfonylureas

Chlorpropamide (eg,Diabinese)
Glimepiride (eg,Amaryl)
Glipizide (eg,Glucotrol)
Glyburide (eg,DiaBeta)
Tolazamide
Tolbutamide (eg,Orinase)

Histamine H2 Antagonists

Cimetidine* (eg,Tagamet)

Ranitidine* (eg,Zantac)

Significance	Onset	Severity	Documentation
4	☆ Rapid ★ Delayed	☆ Major ★ Moderate ☆ Minor	☆ Established ☆ Probable ☆ Suspected ★ Possible ☆ Unlikely

Effects: Reduced clearance of SULFONYLUREAS that may result in hypoglycemia.

Mechanism: H2 ANTAGONIST inhibition of SULFONYLUREA hepatic metabolism, resulting in an accumulation of SULFONYLUREA.

Management: Monitor blood glucose and observe for signs of clinical hypoglycemia after initiation of H2 ANTAGONIST therapy in patients maintained on a SULFONYLUREA. Adjust the SULFONYLUREA dosage as necessary.

Discussion: Pharmacokinetic investigations of this interaction have been equivocal. In 1 study involving 6 diabetic patients, glipizide clearance was reduced by cimetidine, and postprandial blood glucose concentrations were reduced 40%.1 In 2 groups of 6 diabetic patients, cimetidine and ranitidine increased the AUC. This was associated with a decrease in postprandial glucose values and asymptomatic hypoglycemia.2 In other studies involving healthy volunteers, tolbutamide and glyburide clearances were also decreased when administered with cimetidine.3-5 In contrast, other investigations did not confirm the altered tolbutamide pharmacokinetics as a result of coadministration of cimetidine.6,7 These discrepancies can only be partially explained by methodological differences.In 6 non-insulin-dependent patients, ranitidine potentiated the hypoglycemic response to glipizide.8

Sulfonylureas

Chlorpropamide (eg,Diabinese)
Glimepiride (eg,Amaryl)
Glipizide (eg,Glucotrol)
Glyburide (eg,DiaBeta)
Tolazamide
Tolbutamide (eg,Orinase)

Salicylates

Aspirin* (eg,Bayer)
Choline Salicylate (Arthropan)
Magnesium Salicylate (eg,Doan's)
Salsalate (eg,Amigesic)
Sodium Salicylate*
Sodium Thiosalicylate (eg,Rexolate)

Significance	Onset	Severity	Documentation
2	☆ Rapid ★ Delayed	☆ Major ★ Moderate ☆ Minor	☆ Established ★ Probable ☆ Suspected ☆ Possible ☆ Unlikely

Effects: Increased hypoglycemic effect of SULFONYLUREAS.

Mechanism: SALICYLATES reduce basal plasma glucose levels and enhance insulin secretion. Inhibition of prostaglandin synthesis may inhibit acute insulin responses to glucose. Displaced SULFONYLUREA protein binding has been suggested.

Management: Monitor the patient's blood glucose. If hypoglycemia develops, consider decreasing the SULFONYLUREA dose. Consider alternative therapy with acetaminophen(eg,Tylenol) or an NSAID (eg, sulindac [eg,Clinoril]).1

Discussion: Many studies show salicylates reduce basal plasma glucose levels, increase glucose tolerance, and augment acute insulin response.2-19 When salicylates are coadministered with sulfonylureas, the hypoglycemic effect may be increased. In 2 reports, salicylates had no effect on nondiabetic subjects.4,6 In 1 study in healthy volunteers, the coadministration of single doses of chlorpropamide 200 mg and sodium salicylate 3 g was additive in reducing blood glucose.16 When the dose of each drug was halved, the response was no different than the response to either agent alone at the higher dose. In 21 healthy volunteers, aspirin 3.2 g/day for 3 days enhanced basal insulin levels, arginine-stimulated insulin secretion, and tolbutamide-stimulated insulin secretion with corresponding decreases in glycemia.18

Verapamil

Verapamil*(Calan)

Cimetidine

Cimetidine* (Tagamet)

Significance	Onset	Severity	Documentation
5	★ Rapid ☆ Delayed	☆ Major ★ Moderate ☆ Minor	☆ Established ☆ Probable ☆ Suspected ☆ Possible ★ Unlikely

Effects: Oral bioavailability and half-life of VERAPAMIL were increased while clearance was decreased by CIMETIDINE in some studies. Others refute this finding.

Mechanism: Inhibition of VERAPAMIL metabolism.

Management: Because no significant clinical effects were noted, no special clinical interventions appear necessary; monitor patients.

Discussion: Verapamil clearance was decreased 21% and half-life was increased 50%by cimetidine without any changes in other pharmacokinetic parameters or in hepatic blood flow.2 Verapamil bioavailability nearly doubled when cimetidine was given, however, this was due to small changes in the area under the curve (AUC) after oral and intravenous dosing leading to a larger change in the ratio.1 No other changes in pharmacokinetic parameters were noted and other investigators were unable to demonstrate an interaction.3,4 No changes in verapamil-induced ECG alterations have been recorded.1,3 Thus, there does not appear to be a significant interaction between these two drugs.

Loop Diuretics

Bumetanide (eg,Bumex)
Ethacrynic Acid (eg,Edecrin)
Furosemide (eg,Lasix)

Salicylates

Aspirin* (eg,Bayer)
Choline Salicylate (Arthropan)
Magnesium Salicylate (eg,Doan's)
Salsalate (eg,Amigesic)
Sodium Salicylate*
Sodium Thiosalicylate (eg,Rexolate)

Significance	Onset	Severity	Documentation
5	☆ Rapid ★ Delayed	☆ Major ☆ Moderate ★ Minor	☆ Established ☆ Probable ☆ Suspected ★ Possible ☆ Unlikely

Effects: The diuretic response to LOOP DIURETICS may be impaired in patients with cirrhosis and ascites.

Mechanism: Unknown.

Management: No clinical interventions are generally required. For patients with cirrhosis and ascites requiring LOOP DIURETICS, use SALICYLATES with caution.

Discussion: In 6 patients with cirrhosis and ascites, preadministration of IV lysine acetylsalicylate decreased urine volume and sodium excretion following furosemide 40 mg IV. The patients served as their own control.1 Other studies in healthy volunteers have failed to demonstrate antagonism of furosemide-induced diuresis with low or high doses of aspirin2-4 or with the fluorinated salicylate derivative diflunisal (eg,Dolobid).5Further study is needed in patients with CHF, renal dysfunction, and cirrhosis to evaluate the importance of salicylate derivative on the response to loop diuretics.

Verapamil

Verapamil*(Calan)

Cimetidine

Cimetidine* (Tagamet)

Significance	Onset	Severity	Documentation
5	★ Rapid ☆ Delayed	☆ Major ★ Moderate ☆ Minor	☆ Established ☆ Probable ☆ Suspected ☆ Possible ★ Unlikely

Effects: Oral bioavailability and half-life of VERAPAMIL were increased while clearance was decreased by CIMETIDINE in some studies. Others refute this finding.

Mechanism: Inhibition of VERAPAMIL metabolism.

Management: Because no significant clinical effects were noted, no special clinical interventions appear necessary; monitor patients.

Discussion: Verapamil clearance was decreased 21% and half-life was increased 50%by cimetidine without any changes in other pharmacokinetic parameters or in hepatic blood flow.2 Verapamil bioavailability nearly doubled when cimetidine was given, however, this was due to small changes in the area under the curve (AUC) after oral and intravenous dosing leading to a larger change in the ratio.1 No other changes in pharmacokinetic parameters were noted and other investigators were unable to demonstrate an interaction.3,4 No changes in verapamil-induced ECG alterations have been recorded.1,3 Thus, there does not appear to be a significant interaction between these two drugs.

Benzodiazepines (Ox.)		Cimetidine	
Alprazolam* (eg,Xanax) Chlordiazepoxide* (eg,Librium) Clonazepam (Klonopin) Clorazepate* (eg,Tranxene) Diazepam* (eg,Valium) Estazolam (eg,ProSom) Flurazepam* (eg,Dalmane) Halazepam (Paxipam) Midazolam* (Versed) Prazepam Quazepam (Doral)		**Cimetidine* (Tagamet)**	
Significance	Onset	Severity	Documentation
3	★ Rapid ☆ Delayed	☆ Major ☆ Moderate ★ Minor	☆ Established ★ Probable ☆ Suspected ☆ Possible ☆ Unlikely

Effects: Serum levels of some BENZODIAZEPINES may be increased. Certain actions, especially sedation, may be enhanced.

Mechanism: Inhibition of hepatic oxidative metabolism due to enzyme inhibition; other mechanisms may be involved.4,13,14,19

Management: Monitor for increased/prolonged sedation. Warn patients of possible impairment of judgment and reflexes. Reduce BENZODIAZEPINE dose as needed. BENZODIAZEPINES not metabolized by oxidation may avoid the interaction.

Discussion: Benzodiazepines that undergo oxidative metabolism have reduced clearance (30% to 63%), longer half-lives and higher serum levels with this combination.1-3,5-9,12-14,16,21,22 Onset is rapid and sustained, but returns to baseline if cimetidine is stopped for 48 hours.5 Effects may be more pronounced in the elderly with baseline impairment in clearance.8 Reports of increased bioavailability of some agents reflect decreased first-pass metabolism rather than enhanced GI absorption.3,8,9,19 While increased duration of sedation has occurred,2,3,7,10,15 benzodiazepines undergoing hepatic glucuronidation (lorazepam [eg,Ativan], oxazepam [eg,Serax] and temazepam [eg,Restoril]) do not interact.3,4,11,12 Studies with midazolam show no effect17 or effects comparable to diazepam.17,18,23 Nizatidine (Axid) or famotidine (Pepcid) appear not to interact.16,20

第二次訪視

時間：99年4月30日 9:00pm~10:00pm

- **建立用藥資料：**

  藥品過敏史：＿＿無＿＿

  藥品不良反應既往史：＿無＿

  服藥狀況：■ 可自行吞服錠劑或膠囊

  □ 藥品須磨粉 □ 管灌給藥

- **檢視藥品儲存狀況：**

  藥品儲存地點＿客廳桌下(藥盒)＿

  藥品儲存環境□恰當 □待改善 ■藥師協助改善 ■已改善

醫療院所/科別/醫師	調劑處所	商品名	學名	含量/劑型	劑量/用法	實際用法
亞東醫院 心臟血管科 葉東峰	璨鴻藥局	Alpraline	Alprazolam	0.5mg/tab	0.5mg*1BID	0.5mg*1BID
		Isobide	Isosorbide Dinitrate	10mg/tab	10mg*0.5BID	10mg*0.5BID
		Espin	Aspirin	100mg/cap	100mg*1QD	100mg*1QD
		Rasitol	Furosemide	40mg/tab	40mg*1QD	40mg*1QD
		Verapamil	Verapamil	40mg/tab	40mg*1TID	40mg*1TID
		Ciketin	Cimetidine	200mg/tab	200mg*1BID	200mg*1BID
亞東醫院 新陳代謝科 陳華芬	亞東醫院	Glidiab	Glipizide	5mg/tab	5mg*1 BIDAC	5mg*1 BIDAC
亞東醫院 泌尿科邱斌	亞東醫院	Tamlosin	Tamsulosin	0.2mg/cap	0.2mg*1QD	0.2mg*1QD
		MgO	MgO	250mg/tab	250mg*1 Tid	250mg*1 Tid
		Dampurin	Bethanechol	25mg/tab	20mg*1 Bid	20mg*1 Bid
亞東醫院 骨科	亞東醫院	Evista	Raloxifene	60mg/tab	60mg*1QD	60mg*1QD

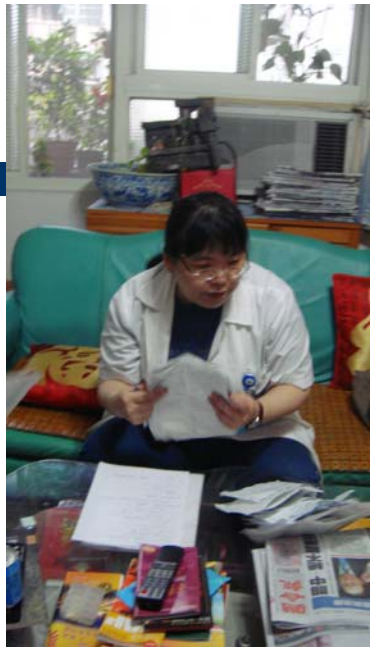
學名	實際用法	用藥相關問題	問題發生原因	藥師建議	說明1	結果	說明2
Alprazolam	5mg*1BID	BR	CH	EC BR			
Isosorbide Dinitrate	10mg* 0.5BID	BR		EC			
Aspirin	100mg* 1QD	BR	CH	BR			
Furosemide	40mg*1QD	BR	CH	BR			
Verapamil	40mg* 1TID	BR	CH	BR	原廠已停產	FA	更換中化同成分藥品
Cimetidine	200mg* 1BID	BR	CH	EG	預防胃酸已有MgO	FA	個案兒子可以接受
Glipizide	5mg* 1 BIDAC	BR	CH	BR			
Tamsulosin	0.2mg* 1QD	BR	DP	EA	藥袋上寫治療攝護腺肥大	FA	個案兒子可以接受
MgO	250mg* 1 Tid	BR	DE	BR			
Bethanechol	20mg*1 Bid	BR	DP	BR			
Raloxifene	60mg*1QD	BR	DP	BR			

其他

藥品交互作用

個案接受建議

給予口頭用藥指導



結案
共服務__2__次

■1. 已達預定次數之個案
□2. 拒絕或無法配合接受服務個案
■3. 個案用藥問題已獲得解決者
□4. 遷出台北縣
□5. 個案入住機構
□6. 個案死亡
□7. 其他：

謝謝聆聽