

運用 MDX 資料庫提供臨床藥事服務

~ 藥品交互作用之案例分享

彰化基督教醫院 藥學部

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2012-07-12



- 藥品交互作用在臨床藥事服務的重要性
- 簡介 MDX 藥品交互作用資料庫之內容與使用
- 案例報告
 - 藥品與藥品交互作用
 - 藥品與檢驗交互作用
 - 藥品過敏反應

2012-03-18 Closed



行政院衛生署 藥品交互作用資料庫系統

Department of Health, Executive Yuan, Taiwan R.O.C.



首頁



意見反應



操作說明



版權聲明

系統使用次數：208633 人次

資料更新時間：2009-01-22 22:20:55

登入系統

醫事人員代碼：

申請時所填密碼：

登入系統

忘記密碼

首次光臨

申請帳號

系統公告

2010-09-29 14:55 發佈

填寫卷有機會拿禮卷「九十九年度系統使用滿意度調查」

感謝您對行政院衛生署藥品交互作用資料庫系統之倚賴與愛護。此次滿意度調查是為提升系統的服務品質，您寶貴的意見將成為我們日後重要依據，請您依照個人實際狀況填寫，同時填寫卷有機會拿禮卷喔。

活動時間：2010年10月1日 ~ 2010年10月31日

獎項內容：

1. OMRON 歐姆腕式血壓計 乙台
2. 4GB隨身碟 10名
3. 7-11禮卷 20名

如有任何疑問，可於上班時間來電詢問(02-26582223轉分機114盧小姐)。

系統簡介

行政院衛生署(以下簡稱本署)於92年7月規劃之「藥品交互作用資料庫管理資訊系統」(以下簡稱本系統)，為提供各醫療



Taiwan Pharmacy Internet Portal

台灣藥事資訊網

民眾用藥諮詢服務

中華民國藥師公會全國聯合會

<http://www.taiwan-pharma.org.tw>

● 首頁 ● 主頁 ● 下載 ● 網站地圖 ● 藥事服務登入

學分查詢

藥師進修

藥師週刊

藥學雜誌

民眾服務

藥品快速查詢

查詢

(請輸入英文藥名)

(進階查詢)

今日瀏覽人數: 47

民眾服務

本站說明

公會介紹

社區藥局

公告訊息

成果發表

藥師養成

用藥常識

用藥查詢

用藥諮詢

問卷調查

有獎徵答

網路資源

高診次居家照護

1111人力銀行
醫護工作機會

藥物交互作用查詢相關網站(◎轉載自藥師週刊第1761期 作者: 高雄市記者毛志民)

一、付費藥學資料庫

名稱	網址	備註
Facts & Comparisons	http://www.factsandcomparisons.com/	
LexiComp	http://www.lexi.com/	
Micromedex 2.0	http://www.micromedex.com/2/home.html	

二、免費檢核藥物交互作用網頁

名稱	網址	備註
Caremark_Drug Interactions	http://cpref.goldstandard.com/inter.asp?r=8084	
Healthline_Drug Interaction Checker	http://www.healthline.com/druginteractions	
Drugs.com_Drug Interaction Checker	http://www.drugs.com/drug_interactions.php	
Medscape_Drug Interaction Checker	http://reference.medscape.com/drug-interactionchecker	
Cytochrome P450 Drug Interaction Table. Drug Interactions.Indiana Clinical Pharmacology	http://medicine.iupui.edu/clinpharm/DDIs/	
Drug Digest	http://www.drugdigest.org/wps/portal/ddigest	
University of Maryland Medical Center Drug Checker	http://www.umm.edu/adam/drug_checker.htm	

Drug Interactions (single)

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輸入一个或多个搜索条件

SEARCH

範例搜尋

Warfarin Sodium [Your search: Warfarin]

Intravenous, Oral

360° 檢視儀錶板 | 跳轉到 1041 其他搜尋結果

MICROMEDEX 藥物綜述資訊

- Adult Dosing
- Pediatric Dosing
- Dose Adjustments
- FDA-Labeled Indications
- Non-FDA Labeled Indications
- Black Box Warning
- Do Not Confuse
- Contraindications
- Precautions
- Pregnancy Category
- Breast Feeding
- **Drug Interactions (single)**
- Adverse Effects - Serious
- IV Compatibility (single)
- Drug Images
- US Trade Names
- Class
- Regulatory Status
- Generic Availability
- Mechanism of Action/Pharmacokinetics
- Administration/Monitoring
- How Supplied
- Toxicology - Clinical Effects
- Toxicology - Treatment
- Toxicology - Range of Toxicity
- Clinical Teaching

PRODUCT LOOKUP

- Tox & Drug: Warfarin Sodium
- Martindale: Warfarin Sodium

藥物圖片



更多圖像

Drug Interactions (single)

DRUG INTERACTIONS (SINGLE)

檢視多種藥物的相互作用

細化方式： 嚴重性： **All** 文件： **All**

跳轉到： [Drug-Drug \(439\)](#) | [過敏症狀 \(0\)](#) | [食物 \(6\)](#) | [乙醇 \(1\)](#) | [實驗室 \(0\)](#) | [抽煙 \(1\)](#) | [懷孕 \(1\)](#) | [哺乳期 \(1\)](#)

Drug-Drug 相互作用 (439)

藥物：	嚴重性：	文件：	綜述：
TAMOXIFEN CITRATE [Systemic] -- WARFARIN [Systemic]	 Contraindicated	Good	Concurrent use of TAMOXIFEN and WARFARIN may result in an increased risk of bleeding.
AMIODARONE [Systemic] -- WARFARIN SODIUM [Systemic]	 Major	Excellent	Concurrent use of AMIODARONE and WARFARIN may result in an increased risk of bleeding.
MOXIFLOXACIN HYDROCHLORIDE [Systemic] -- WARFARIN [Systemic]	 Major	Excellent	Concurrent use of MOXIFLOXACIN and WARFARIN may result in increased risk of bleeding.
SIMVASTATIN [Systemic] -- WARFARIN SODIUM [Systemic]	 Major	Excellent	Concurrent use of SIMVASTATIN and WARFARIN may result in increased risk of bleeding and an increased risk of rhabdomyolysis.
WARFARIN [Systemic] -- NAPROXEN SODIUM [Systemic]	 Major	Excellent	Concurrent use of NAPROXEN and WARFARIN may result in an increased risk of bleeding.

Interaction Detail

- Warning
- Clinical Management
- Onset
- Severity
- Documentation
- Probable Mechanism
- Summary
- Literature
- Reference

INTERACTION DETAIL

Warning:

Concurrent use of TAMOXIFEN and WARFARIN may result in an increased risk of bleeding.

Clinical Management:

Concurrent administration of tamoxifen and coumarin-type anticoagulants, including warfarin, is contraindicated in high-risk women and women with ductal carcinoma in situ where tamoxifen is used to reduce the incidence of breast cancer. In other clinical situations where tamoxifen is used concurrently with warfarin, consider using lower warfarin doses and closely monitor the INR (international normalized ratio) with the addition and withdrawal of treatment with tamoxifen and periodically.

Onset:

Delayed

Severity:

Contraindicated

Documentation:

Drug Interactions (single)

DRUG INTERACTIONS (SINGLE)

檢視多種藥物的相互作用

細化方式：

嚴重性：

All

文件：

All

跳轉到： [Drug-Drug \(439\)](#) | [過敏症狀 \(0\)](#) | [食物 \(6\)](#) | [乙醇 \(1\)](#) | [實驗室 \(0\)](#) | [抽煙 \(1\)](#) | [懷孕 \(1\)](#) | [哺乳期 \(1\)](#)

Drug-Drug 相互作用 (439)

藥物：

嚴重性：

文件：

綜述：

TAMOXIFEN CITRATE [Systemic] --
WARFARIN [Systemic]



Contraindicated

Good

Concurrent use of TAMOXIFEN and WARFARIN may result in an increased risk of bleeding.

AMIODARONE [Systemic] --
WARFARIN SODIUM [Systemic]



Major

Excellent

Concurrent use of AMIODARONE and WARFARIN may result in an increased risk of bleeding.

MOXIFLOXACIN HYDROCHLORIDE
[Systemic] -- WARFARIN [Systemic]



Major

Excellent

Concurrent use of MOXIFLOXACIN and WARFARIN may result in increased risk of bleeding.

SIMVASTATIN [Systemic] --
WARFARIN SODIUM [Systemic]



Major

Excellent

Concurrent use of SIMVASTATIN and WARFARIN may result in increased risk of bleeding and an increased risk of rhabdomyolysis.

WARFARIN [Systemic] --
NAPROXEN SODIUM [Systemic]



Major

Excellent

Concurrent use of NAPROXEN and WARFARIN may result in an increased risk of bleeding.

Definition

定義
嚴重性：

 **禁忌** **Contraindicated**
禁止同時使用這些藥物。

 **嚴重** **Major**
這種相互作用可能危及生命和/或需要醫療干預以儘量減少或避免嚴重的不良影響。

 **中等** **Moderate**
這種相互作用可能導致加重患者的病情和/或需要在治療中發生改變。

 **較弱** **Minor**
這種相互作用將限制臨床效果。表現可能包括增加副作用的頻率或嚴重程度，但一般不需要在治療中發生重大改變。

 **未知** **Unknown**
未知。

列印  關閉 

定義
文件：

卓越	對照研究明確確立了相互作用的存在。	Excellent
良好	文件強烈建議相互作用的存在，但缺乏良好對照研究。	Good
一般	可用文件不佳，但藥理考慮引導臨床醫生懷疑相互作用的存在性；或從藥理學講，文件可很好地用於類似的藥物。	Fair
未知	未知。	Unknown

列印  關閉 

Drug Interactions (single)

DRUG INTERACTIONS (SINGLE)

檢視多種藥物的相互作用

細化方式：

嚴重性：

All

文件：

All

跳轉到：

Drug-Drug (439) | 過敏症狀 (0) | 食物 (6) | 乙醇 (1) | 實驗室 (0) | 抽煙 (1) | 懷孕 (1) | 哺乳期 (1)

Drug-Drug 相互作用 (439)

藥物：

嚴重性：

文件：

綜述：

TAMOXIFEN CITRATE [Systemic] --
WARFARIN [Systemic]



Contraindicated

Good

Concurrent use of TAMOXIFEN and WARFARIN may result in an increased risk of bleeding.

AMIODARONE [Systemic] --
WARFARIN SODIUM [Systemic]



Major

Excellent

Concurrent use of AMIODARONE and WARFARIN may result in an increased risk of bleeding.

MOXIFLOXACIN HYDROCHLORIDE
[Systemic] -- WARFARIN [Systemic]



Major

Excellent

Concurrent use of MOXIFLOXACIN and WARFARIN may result in increased risk of bleeding.

SIMVASTATIN [Systemic] --
WARFARIN SODIUM [Systemic]



Major

Excellent

Concurrent use of SIMVASTATIN and WARFARIN may result in increased risk of bleeding and an increased risk of rhabdomyolysis.

WARFARIN [Systemic] --
NAPROXEN SODIUM [Systemic]




Major

Excellent

Concurrent use of NAPROXEN and WARFARIN may result in an increased risk of bleeding.

Drug Interactions (single)

Drug-懷孕 相互作用 (1)

藥物：	嚴重性：	文件：	綜述：
PREGNANCY -- WARFARIN [Systemic]	 Contraindicated	Unknown	Warfarin is rated as US FDA Category X. Studies, adequate well-controlled or observational, in animals or pregnant women have demonstrated positive evidence of fetal abnormalities. The use of the product is contraindicated in women who are or may become pregnant.

Drug-哺乳期 相互作用 (1)

Summary

藥物：	嚴重性：	文件：	綜述：
LACTATION -- WARFARIN [Systemic]	 Minor	Unknown	According to the American Academy of Pediatrics, Warfarin is compatible with breast-feeding.

定義

嚴重性：	 禁忌	 嚴重	 中等	 較弱	 未知
文件：	卓越	良好	一般	未知	

Drug Interactions (single)

DRUG INTERACTIONS (SINGLE)

檢視多種藥物的相互作用

細化方式： 嚴重性： 文件：

跳轉到： [Drug-Drug \(439\)](#) | [過敏症狀 \(0\)](#) | [食物 \(6\)](#) | [乙醇 \(1\)](#) | [實驗室 \(0\)](#) | [抽煙 \(1\)](#) | [懷孕 \(1\)](#) | [哺乳期 \(1\)](#)

Drug-Drug 相互作用 (439)

藥物：	嚴重性：	文件：	綜述：
TAMOXIFEN CITRATE [Systemic] -- WARFARIN [Systemic]	 Contraindicated	Good	Concurrent use of TAMOXIFEN and WARFARIN may result in an increased risk of bleeding.
AMIODARONE [Systemic] -- WARFARIN SODIUM [Systemic]	 Major	Excellent	Concurrent use of AMIODARONE and WARFARIN may result in an increased risk of bleeding.
MOXIFLOXACIN HYDROCHLORIDE [Systemic] -- WARFARIN [Systemic]	 Major	Excellent	Concurrent use of MOXIFLOXACIN and WARFARIN may result in increased risk of bleeding.
SIMVASTATIN [Systemic] -- WARFARIN SODIUM [Systemic]	 Major	Excellent	Concurrent use of SIMVASTATIN and WARFARIN may result in increased risk of bleeding and an increased risk of rhabdomyolysis.
WARFARIN [Systemic] -- NAPROXEN SODIUM [Systemic]	 Major	Excellent	Concurrent use of NAPROXEN and WARFARIN may result in an increased risk of bleeding.

Drug Interactions (multiple)

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輸入一个或多个搜索条件

SEARCH

範例搜尋

藥物相互作用

在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下 ►（新增）按鈕。

輸入搜尋
詞:

相符的藥物名稱: (25)

Prednicarbate
Prednicen-M
Prednicot
Prednisolone Sodium Phosphate
Prednisol
PrednisoLONE
Prednisolone
Prednisolone (Prednisolone Sodium Phos...
PrednisoLONE Acetate
Prednisolone Acetate
Prednisolone Acetate w/Sodium Sulfa
Prednisolone Acetate/Prednisolone Sodi...
Prednisolone Acetate/Sulfamethoxazole

要檢查的藥物:

Add Allergies ►

Amlodipine
Esomeprazole Magnesium
Furosemide
Prednisolone
Sennosides
Valsartan
Warfarin Sodium

帶有星號 (*) 的字母大寫項目表示過敏 -

清除

提交

Drug Interaction Results



Drug Interaction Results

[← 修改相互作用](#)

細化方式： 藥物：[All](#) 嚴重性：[All](#) 文件：[All](#) 類型：[All](#)

跳轉到：[藥物-藥物 \(2\)](#) | [複方 \(0\)](#) | [過敏症狀 \(0\)](#) | [食物 \(7\)](#) | [乙醇 \(1\)](#) | [實驗室 \(1\)](#) | [抽煙 \(1\)](#) | [懷孕 \(6\)](#) | [哺乳期 \(6\)](#)

Drug-Drug 相互作用 (2)

藥物：	嚴重性：	文件：	綜述：
ESOMEPRAZOLE MAGNESIUM [Systemic] -- WARFARIN SODIUM [Systemic]	 Moderate	Good	Concurrent use of ESOMEPRAZOLE and WARFARIN may result in elevations in INR values and potentiation of anticoagulation effects.
PREDNISOLONE [Systemic] -- WARFARIN SODIUM [Systemic]	 Moderate	Fair	Concurrent use of PREDNISOLONE and WARFARIN may result in increased risk of bleeding or diminished effects of warfarin.

複方 (未找到)

Drug-過敏症狀 相互作用 (未找到)

Drug-食物 相互作用 (7)

藥物：	嚴重性：	文件：	綜述：
WARFARIN SODIUM [Systemic]	 Major	Good	Concurrent use of WARFARIN and POMEGRANATE may result in increased warfarin plasma concentrations and

Drug Interactions (multiple)

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輸入一个或多个搜索条件

SEARCH

範例搜尋

藥物相互作用

在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下 ►（新增）按鈕。

輸入搜尋

詞:

相符的藥物名稱: (25)

- Prednicarbate
- Prednicen-M
- Prednicot
- Prednisolone Sodium Phosphate
- Prednisol
- PrednisoLONE
- Prednisolone**
- Prednisolone (Prednisolone Sodium Phos...
- PrednisoLONE Acetate
- Prednisolone Acetate
- Prednisolone Acetate w/Sodium Sulfa
- Prednisolone Acetate/Prednisolone Sodi...
- Prednisolone Acetate/Sulfamethoxazole

要檢查的藥物:

- Amlodipine
- Esomeprazole Magnesium
- Furosemide
- Prednisolone
- Sennosides
- Valsartan
- Warfarin Sodium

Add Allergies ►


帶有星號 (*) 的字母大寫項目表示過敏 -

清除

提交

Add allergies

新增過敏症狀。

在搜尋欄位中鍵入過敏症狀。選擇過敏症狀並按一下  (新增) 按鈕。
按一下「更新」將您的選擇加入至「藥物相互作用」中"要檢查的藥物"表單。


輸入過敏症

狀:

相符的過敏症狀: (416)

ABACAVIR
ABARELIX
ABATACEPT
ABCIXIMAB
ABECARNIL
ABIES NIGRA
ABIRATERONE
ABOBOTULINUMTOXINA
ACACIA
ACADESINE
ACAMPROSATE
ACARBOSE
ACE INHIBITOR

要檢查的過敏症狀:



取消

更新

Case 1: Warfarin + Herbal medicine

The patient is an 67-year-old Taiwanese man, a retired military officer with histories of AF, COPD, and HTN without known drug allergy, who presented with abdominal bleeding after falling to the ground at bathroom.....



Case 1: Patient drug profile & Lab. data

Medication	5/5	5/10	5/15	5/18	5/22	5/25	5/28	6/1
Transamine 250 mg Q6H, IB								
Esomeprazole 40 mg QD, IB				PO				
Cefuroxime 1 g Q12H, IV								
Amlodipine 5 mg QD, PO								
Furosemide 20 mg Q6H, IV				40 mg QD, PO				
Prednisolone 10 mg BID, PO								
Warfarin 2.5 mg QD, PO								
天花粉 3 錢 TID,PO								
甘草 2 錢 TID,PO								
柴胡 2 錢 TID,PO								
Lab. Data	5/5	5/10	5/15	5/17	5/22	5/25	5/28	6/1
INR	—	—	0.9	1.3	4.9	1.8	1.2	1.8

Management

WARFARIN

顯示整個文件 | 列印

DRUGDEX® 評價

其他來源

DOSING INFORMATION

全部展開 | 全部折疊 | 上一步

Dosage in Other Disease States

A) Warfarin Sodium

1) Discontinuation of Therapy

a) When discontinuing warfarin therapy, abrupt discontinuation is suggested rather than gradual tapering of the dose according to the American College of Chest Physicians (ACCP) guidelines [1].

REFERENCES

[1] Holbrook A, Schulman S, Witt DM, et al: Evidence-Based Management of Anticoagulant Therapy: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2012; 141(2 suppl):e152S-e184S.
PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>
PubMed Article: <http://www.ncbi.nlm.nih.gov/...>

For patients taking VKAs with INRs between 4.5 and 10 and with no evidence of bleeding, we suggest against the routine use of vitamin K.

Chest. 2012 Feb;141(2 Suppl):e152S-84S.

Recommended management of a supratherapeutic INR

INR	Bleeding present	Recommended action
>Ther to 5.0	No	Lower warfarin dose, or
		Omit a dose and resume warfarin at a lower dose when INR is in therapeutic range, or
		No dose reduction needed if INR is minimally prolonged
>5.0 to 9.0	No	Omit the next 1 to 2 doses of warfarin, monitor INR more frequently, and resume treatment at a lower dose when INR is in therapeutic range, or
		Omit a dose and administer 1 to 2.5 mg oral vitamin K1*
>9.0	No	Hold warfarin and administer 2.5 to 5 mg oral vitamin K1. Monitor INR more frequently and administer more vitamin K1 as needed, Resume warfarin at a lower dose when INR is in therapeutic range
Any	Serious or life-threatening	Hold warfarin and administer 10 mg vitamin K1 by slow IV infusion; supplement with prothrombin complex concentrate, fresh frozen plasma, or recombinant human factor VIIa, depending on clinical urgency. Monitor and repeat as needed.

Pharmacokinetics of warfarin

WARFARIN

 顯示整個文件

DRUGDEX® 評價 

其他來源 ▶

PHARMACOKINETICS

 全部展開 |  全部折疊

▼ Onset and Duration

A) Onset

1) Warfarin Sodium

a) Initial Response

1) Anticoagulation: within 24 hr [8]

a) The initial anticoagulant effect of warfarin usually occurs within 24 hr after administration [8].

b) Peak Response

1) Anticoagulation: 72 to 96 hr [8]

a) The peak anticoagulant effect of warfarin usually occurs within 72 to 96 hr [8].

Drug-drug interaction

藥物相互作用

在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下 （新增）按鈕。

輸入搜尋

詞:

相符的藥物名稱: (7)

Dong Quai

Dong Quai (Dong Quai Root)

Dong Quai (Homeopathic Substance)

Dong Quai Extract

Dong Quai Root

Dong Quai Root (Dong Quai)

Dong Quai Root Herbal

要檢查的藥物：

Add Allergies 

Amlodipine

Amygdalus

Dong Quai

Esomeprazole Magnesium

Furosemide

Licorice

Prednisolone

Warfarin

帶有星號(*)的字母大寫項目表示過敏。

清除

提交

Drug interaction results

Drug-Drug 相互作用 (6)

藥物：	嚴重性：	文件：	綜述：
DONG QUAI [Systemic] -- WARFARIN SODIUM [Systemic] [Warfarin]	 Moderate	Good	Concurrent use of DONG QUAI and ANTICOAGULANTS may result in increased risk of bleeding.
ESOMEPRAZOLE MAGNESIUM [Systemic] -- WARFARIN SODIUM [Systemic] [Warfarin]	 Moderate	Good	Concurrent use of ESOMEPRAZOLE and WARFARIN may result in elevations in INR values and potentiation of anticoagulation effects.
FUROSEMIDE [Systemic] -- LICORICE [Systemic]	 Moderate	Good	Concurrent use of LICORICE and DIURETICS may result in increased risk of hypokalemia and/or reduced effectiveness of the diuretic.
LICORICE [Systemic] -- PREDNISOLONE [Systemic]	 Moderate	Good	Concurrent use of LICORICE and CORTICOSTEROIDS may result in increased risk of corticosteroid adverse effects.
LICORICE [Systemic] -- WARFARIN SODIUM [Systemic] [Warfarin]	 Moderate	Fair	Concurrent use of LICORICE and ANTICOAGULANTS may result in increased risk of bleeding.
PREDNISOLONE [Systemic] -- WARFARIN SODIUM [Systemic] [Warfarin]	 Moderate	Fair	Concurrent use of PREDNISOLONE and WARFARIN may result in increased risk of bleeding or diminished effects of warfarin.

Case 1: Patient drug profile & Lab. data

Medication	5/5	5/10	5/15	5/18	5/22	5/25	5/28	6/1
Transamine 250 mg Q6H, IB								
Esomeprazole 40 mg QD, IB				PO				
Cefuroxime 1 g Q12H, IV								
Amlodipine 5 mg QD, PO								
Furosemide 20 mg Q6H, IV				40 mg QD, PO				
Prednisolone 10 mg BID, PO								
Warfarin 2.5 mg QD, PO								
天花粉 3 錢 TID,PO								
甘草 2 錢 TID,PO								
柴胡 2 錢 TID,PO								
Lab. Data	5/5	5/10	5/15	5/17	5/22	5/25	5/28	6/1
INR	—	—	0.9	1.3	4.9	1.8	1.2	1.8

Interaction details

- **Warning:** Concurrent use of DONG QUAI and ANTICOAGULANTS may result in increased risk of bleeding.
- **Clinical Management:** Caution is advised if dong quai and an anticoagulant are taken concomitantly. Monitor for signs and symptoms of excessive bleeding.
- **Onset:** Delayed
- **Severity:** Moderate
- **Probable Mechanism:** Inhibition of thromboxane formation and platelet aggregation by coumarin derivatives in dong quai
- **Summary:** One patient taking dong quai with warfarin presented with excessive bruising and an International Normalized Ratio (INR) of 10, within 1 month of beginning dong quai (Ellis & Stephens, 1999); another patient taking dong quai with warfarin presented with an INR of 4.9 yet was asymptomatic (Page & Lawrence, 1999). In a study of 96 patients, intravenous dong quai significantly prolonged prothrombin time compared with dextran (Junjie & Huaijun, 1984). Dong quai contains coumarin derivatives and components that may inhibit platelet aggregation (Page & Lawrence, 1999; Ko et al, 1989).

Interaction details

● Literature:

- A 46-year-old female taking warfarin 5 mg daily, digoxin 0.25 mg daily, and furosemide 20 mg daily for atrial fibrillation had an international normalized ratio (INR) between 2 and 3 for more than two years and remained in good health. She presented to an anticoagulation clinic with a prothrombin time (PT) of 23.5 seconds and INR of 4.05, but was asymptomatic. She denied dietary changes, illnesses, or other medication use. One month later, her PT was 27.0 seconds and her INR had increased to 4.9. She again denied any changes in diet or medications, but did state that she had started taking dong quai (Nature's Way) 565 mg once or twice daily for perimenopausal symptoms. She was instructed to discontinue dong quai, and two weeks later her PT was 21.6 and her INR was 3.41. After another two weeks had passed, her PT and INR were 18.5 and 2.48, respectively (Page & Lawrence, 1999).
- In a study of 96 patients with acute ischemic stroke admitted to a Chinese hospital, 200 milliliters (mL) of an extemporaneously prepared 25% RAS (dong quai from the dried root of *Radix Angelicae Sinensis*: RAS) solution was administered intravenously for 20 days to 50 patients and dextran was administered to 46 controls. The prothrombin times (PT) were significantly (p less than 0.0001) longer in patients administered RAS than in patients receiving dextran, although specific PT values were not provided. Dextran can inhibit platelet aggregation, and prolong both bleeding and coagulation times (Junjie & Huaijun, 1984).
- A 1-month regimen of dong quai (dose unspecified) provoked extensive bruising and an International Normalized Ratio (INR) of 10 after being given concomitantly with warfarin to a menopausal woman (age unspecified). The patient had previously taken warfarin for 10 years following a mitral valvuloplasty (Ellis & Stephens, 1999).

● Reference(s):

- Ellis GR & Stephens MR: *Minerva*. *BMJ* 1999; 319:650.
- Junjie T & Huaijun H: *Effects of Radix Angelicae Sinensis on hemorrheology in patients with acute ischemic stroke*. *J Tradit Chin Med* 1984; 4:225-228.
- Ko FN, Wu TS, Liou MJ et al: *Inhibition of platelet thromboxane formation and phosphoinositides breakdown by osthole from Angelica pubescens*. *Thromb Haemost* 1989; 62:996-999.
- Page RL & Lawrence JD: *Potentiation of warfarin by dong quai*. *Pharmacotherapy* 1999; 19:870-876.

Case 2: Piperacillin & Aspergillus galactomannan

- This 26 y/o female had past histories of CKD stage V; lupus nephritis; SLE, complicated with hemolytic anemia; and HTN.
- Regular follow up on our OPD
 - Methylprednisolone 4 mg BID
 - Hydroxychloroquine 200 mg BID
 - Mycophenolate 180 mg BID
 - Furosemide 40 mg QD
 - Labetalol 200 mg BID
 - Exforge 5mg/80mg 1tab BID
- C.C.
 - Cough with blood tinged white sputum for 3 days

Tentative Diagnosis

- Suspect acute pulmonary edema, suspect fluid overload R/O **pneumonia** related and SLE progress
- SLE with lupus nephritis flare up
- Anemia suspect SLE related R/O Bleeding
- CKD stage V



**Tazocin 2250 mg
Q8H, IB**

報告項目	結果值	參考值
Aspergillus galactomannan Ag: Index	14.9	<0.5
Aspergillus galactomannan Ag: Interpretation	Positive	Negative

Drug-Lab. interaction

Piperacillin Sodium/Tazobactam Sodium			
DrugPoint® 綜述  其他來源 			
DRUG INTERACTIONS (SINGLE)			
Drug-實驗室 相互作用 (2)			
藥物：	嚴重性：	文件：	綜述：
PIPERACILLIN/TAZOBACTAM -- ASPERGILLUS GALACTOMANNAN ANTIGEN ASSAY	 Moderate	Good	PIPERACILLIN/TAZOBACTAM may result in false-positive galactomannan detection due to mechanism unknown.
PIPERACILLIN/TAZOBACTAM -- URINE GLUCOSE TEST	 Minor	Fair	PIPERACILLIN/TAZOBACTAM may result in falsely positive urine glucose measurement due to assay interference.

■ **Warning:** Piperacillin/Tazobactam may result in **false-positive** galactomannan detection due to mechanism unknown.

■ **Onset:** Rapid

■ **Severity:** Moderate

■ **Documentation:** Good

with use of Bio-Rad Laboratories Platelia® Aspergillus enzyme immunoassay (EIA) when applied to serum samples from patients receiving piperacillin/tazobactam. **This assay may still be used for patients receiving piperacillin/tazobactam infusions, however, it is important to draw the blood specimen when piperacillin/tazobactam plasma concentrations are at trough level or just prior to the next dose.** Use caution when interpreting positive results (Singh et al, 2004; Anon, 2005).

■ **Summary:** Evidence indicates thatNotably, in a single-center study, therapy with the Tazocin(TM) brand piperacillin/tazobactam did not appear to significantly increase the risk of false positive serum samples among treated patients when using the Platelia® Aspergillus GM antigen assay; additionally, none of the 90 piperacillin/tazobactam vials tested positive for GM (Mikulska et al, 2012).

■ **Literature:** False-positive test results using the Bio-Rad Laboratories Platelia Aspergillus EIA test in patients

Case 3: Ephedrine & amphetamine assay

- This 22 y/o female, a college student without known adverse drug reaction, denied any history. She fainted suddenly when biking before admission.
- 美容中心 medication (for 1 year):
 - Caffeine 100 mg TID
 - Topiramate 25 mg TID
 - Ephedrine (纖之錠) 1 tab TID
 - Furosemide 40 mg QD
 - MgO 500 mg TID
 - Sennosides 2 tab HS

Urine Test for Amphetamine

報告項目	結果值	參考值
Amphetamine	6533 ng/mL	< 500 ng/mL

Drug-實驗室 相互作用 (1)

藥物：嚴重性：文件：綜述：

EPHEDRINE SULFATE [Systemic] (Ephedrine (Ephedrine Sulfate))



Good

EPHEDRINE may result in a falsely positive amphetamine assay result due to chemical similarity between ephedrine and amphetamine.

Interaction detail

- **Warning:** EPHEDRINE may result in a falsely positive amphetamine assay result due to chemical similarity between ephedrine and amphetamine.
- **Clinical Management:** When screening for amphetamines using the EMIT assay, recent use of ephedrine should be ruled out when test results are positive.
- **Onset:** Rapid
- **Severity:** Minor
- **Documentation:** Good
- **Probable Mechanism:** chemical similarity between ephedrine and amphetamine
- **Summary:** Several over-the-counter and prescription drugs can interfere with the EMIT assay for amphetamines. These include ephedrine, phenylpropanolamine, pseudoephedrine, phenmetrazine, and phentermine (high doses) (Personal Communication, 1987). Their recent use should be ruled out when test results are positive.
- **Reference(s):** *Personal Communication: Personal Communication: Analytitox. Analytitox, Denver, Colorado, 303-595-9071, 1987.*

Case 4: Protamine related anaphylactic shock

性別	年齡	發生日期	藥品	症狀描述	Naranjo scale
男	77 Y	10/19/1	Protamine INJ	Anaphylactic shock	4 (可能)
10/18	12:10	BP 105/46	mmHg		

10/18 12:23 **Protamine** 2.2 cc IV to reverse heparin

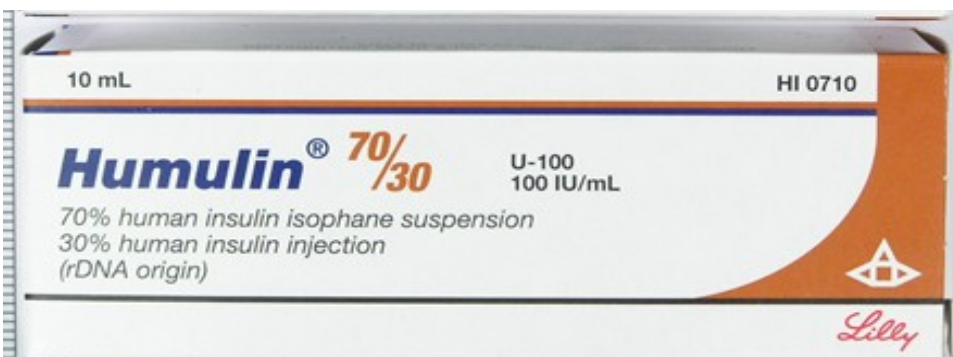
10/18 12:25 BP 54/23 mmHg, bradycardia and conscious change. Rescue with cardiac massage, atropine, epinephrine pump, dopamine pump, fluid, hydrocortosone and endotracheal intubation, IABP implantation.

10/18 20:30 Blood pressure more stable → DC epinephrine


Protamine related anaphylaxis

- Cardiovascular effects:
hypotension, bradycardia,
pulmonary hypertension, reduced
cardiac output, transient flushing,
and a feeling of warmth. **MICROMEDEX® 2.0**
- 仿單：過敏性反應包括低血壓、呼吸困難、支氣管痙攣、潮紅、蕁麻疹、血管性水腫、過敏性休克





新增過敏症狀。

在搜尋欄位中鍵入過敏症狀。選擇過敏症狀並按一下  (新增) 按鈕。按一下「更新」將您的選擇加入至「藥物相互作用」中「要檢查的藥物」表單。

輸入過敏症

狀:	
----	--

相符的過敏症狀: (1)

PROTAMINE

要檢查的過敏症狀：

PROTAMINE

Drug Interaction Results

◀ 修改相互作用

細化方式： 藥物： All ▼ 嚴重性： All ▼ 文件： All ▼ 類型： All ▼

跳轉到： 藥物-藥物 (0) | 複方 (0) | 過敏症狀 (1) | 食物 (2) | 乙醇 (2) | 實驗室 (0) | 抽煙 (0) | 懷孕 (7) | 哺乳期 (6)

Drug-Drug 相互作用 (未找到)

複方 (未找到)

Drug-過敏症狀 相互作用 (1)

藥物：	嚴重性：	文件：	綜述：
INSULIN HUMAN ISOPHANE (NPH)/INSULIN HUMAN REGULAR -- PROTAMINE	 Unknown	Unknown	CROSS-REACTIVITY BETWEEN INSULINS OR AMONG PROTAMINE-CONTAINING AGENTS MAY OCCUR

Drug-食物 相互作用 (2)

藥物：	嚴重性：	文件：	綜述：
FUROSEMIDE [Oral (systemic)]	 Moderate	Excellent	Concurrent use of FUROSEMIDE and FOOD may result in decreased furosemide exposure and efficacy.
LORAZEPAM [Systemic]	 Minor	Good	Concurrent use of CAFFEINE and LORAZEPAM may result in reduced sedative and anxiolytic effects of lorazepam.

INTERACTION DETAIL

Adverse Effect:

ANAPHYLAXIS, ASTHMA, SKIN RASH

Warning:

CROSS-REACTIVITY BETWEEN INSULINS OR AMONG PROTAMINE-CONTAINING AGENTS MAY OCCUR

Probable Mechanism:

IgE- or immune complex-mediated reaction.

Summary:

CROSS-REACTIVITY - HYPERSENSITIVITY: Cross-allergenicity is reported between insulins (Anderson & Adkinson, 1987), including recombinant human (rDNA) insulin preparations (Bodtger & Wittrup, 2005) and human insulin analogues (Adachi et al, 2004; JiXiong et al, 2004; Barranco et al, 2003; Durand-Gonzalez et al, 2003). True hypersensitivity reactions are rare (Bodtger & Wittrup, 2005). Source, purity, and presence of components (zinc, cresol, protamine, etc) may contribute to allergenicity (Heinzerling et al, 2007). Allergenicity by source can be ranked from most allergenic to least allergenic: bovine > porcine > human (Heinzerling et al, 2007). Local allergic reactions to insulin

Interaction Detail (1)

- **Adverse effect:** anaphylaxis, asthma, skin rash
- **Warning:** cross-reactivity between insulins or among protamine-containing agents may occur
- **Probable mechanism:** IgE- or immune complex-mediated reaction.
- **Summary:**
 - **Cross-allergenicity is reported between insulins** (anderson & adkinson, 1987), including recombinant human (rDNA) insulin preparations (bodtger & wittrup, 2005) and human insulin analogues (adachi et al, 2004; jixiong et al, 2004; barranco et al, 2003; durand-gonzalez et al, 2003). True hypersensitivity reactions are rare (bodtger & wittrup, 2005). Source, purity, and presence of components (zinc, cresol, protamine, etc) may contribute to allergenicity (heinzerling et al, 2007). Allergenicity by source can be ranked from most allergenic to least allergenic: bovine > porcine > human (heinzerling et al, 2007). Local allergic reactions to insulin may include erythema, pruritus, and induration (richardson & kerr, 2003). Cutaneous reactions are usually short-lived and may resolve spontaneously with a few weeks (richardson & kerr, 2003). Management of cutaneous allergic reactions to insulins may include use of antihistamines, corticosteroids, desensitization to insulin, or a change in the delivery system (richardson & kerr, 2003; messaad et al, 2004).

Interaction Detail (2)

- **Protamine-containing agents:** Patients at greatest risk for development of allergic reactions to protamine include those patients with a history of **diabetes mellitus, protamine-containing insulin therapy, fish allergy, previous exposure to protamine, or recent vasectomy** (Caplan & Berkman, 1976; Gupta et al, 1988; Knape et al, 1981; Levy et al, 1986; Levy et al, 1989; Samuel et al, 1978; Weiler et al, 1990). Reactions to protamine might include anaphylactic or anaphylactoid reactions, angioneurotic edema, apnea, bradycardia, bronchospasm, cardiac arrest, flushing, hypotension, loss of consciousness, numbness, occipital pain, pulmonary artery pressure elevation, urticaria, ventricular fibrillation, or wheezing (Caplan & Berkman, 1976; Doolan et al, 1981; Gupta et al, 1988; Weiler et al, 1990; Weiss et al, 1990).
- **Alternate Therapy:** Switch to an **oral antidiabetic agent**.



Thank You!