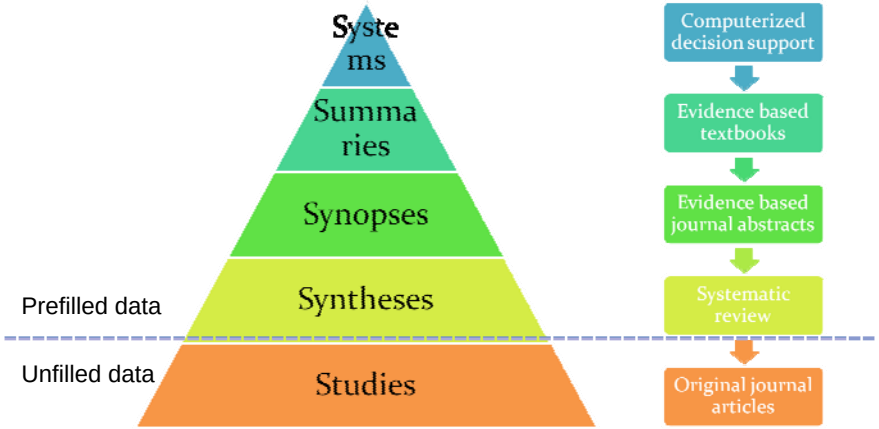
如何運用實證資料庫
解決藥品諮詢問題之實務經驗分享

高雄醫學大學附設中和紀念醫院 藥劑部 許郁笙 藥師

Yu-Sheng, Hsu (890260@ms.kmuh.org.tw)
Department of Pharmacy, Kaohsiung Medical University Hospital

"5S" model searching strategy



- A • Analysis
- A • Asking
- A • Acquire
- A • Appraisal
- A • Application
- A • Audit

實證步驟之應用

- 分析問題種類
  - 一般藥物導向
  - 治療學導向
- 分析諮詢對象
  - 資訊深淺、語言
- 搜尋適合的資訊來源

一般藥品導向之參考資源

- Physicians' Desk Reference (PDR)
- Handbook of Nonprescription Drugs
- Drug Facts and Comparisons
- AHFS Drug Information
- Martindale's Extra Pharmacopoeia
- Drug Information Handbook
- MIMS台灣藥品手冊

治療學方面之資訊來源

- Applied Therapeutics: The Clinical Use of Drugs
- Current Therapy
- Harrison's Principles of Internal Medicine
- Handbook of antimicrobial therapy
- Pharmacotherapy: A Pathophysiologic Approach
- Pharmacological Basis of Therapeutics
- Textbook of Therapeutics

百戰百勝

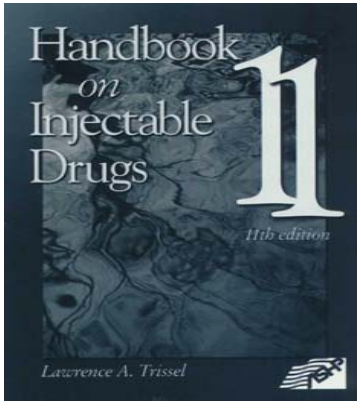
常見藥品諮詢問題之種類

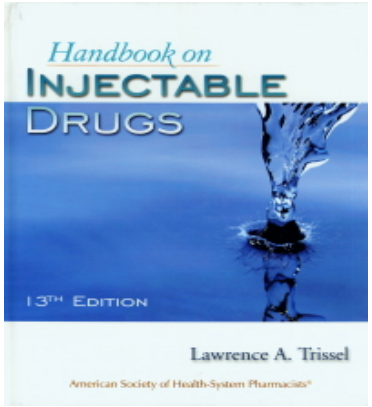
武器：參考資源

常見藥品諮詢問題之種類

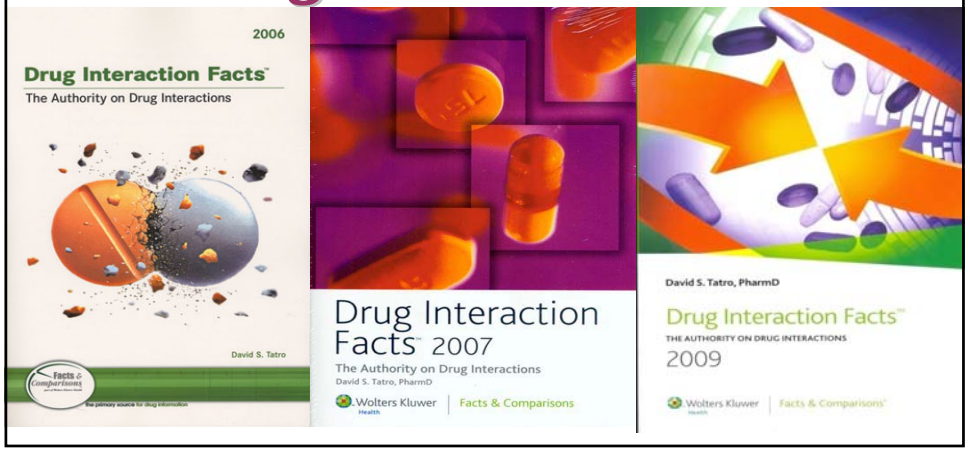
- 藥物不良反應 (adverse drug reaction)
- 劑量（包括肝腎功能不良、老人、兒童）之劑量調整及投藥方式
- 藥品交互作用 (drug interaction)
- 適應症 (indications)
- 中毒或藥品過量的處理 (toxicology)
- 藥品鑑定、辨識
- 懷孕及哺乳之用藥考量
- 藥品動態學（pharmacokinetics: ADME）
- 其他，如：
  - 相容性、禁忌、費用、配製、安定性、貯存及健保規範等

Handbook on Injectable Drugs

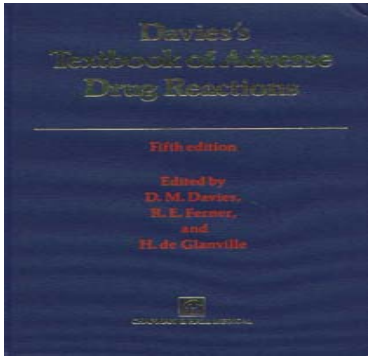




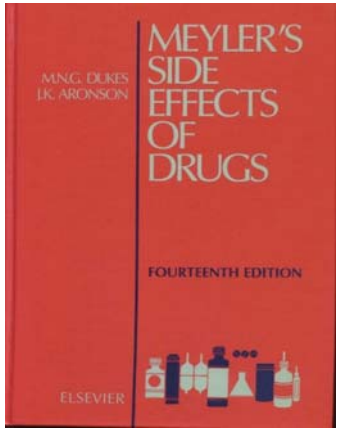
Drug Interaction Facts

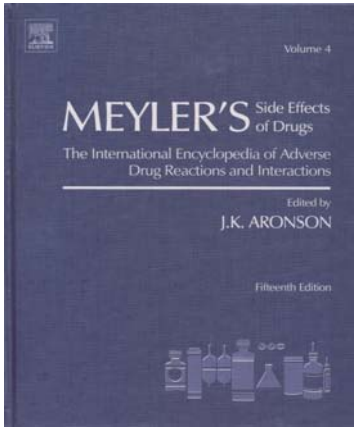


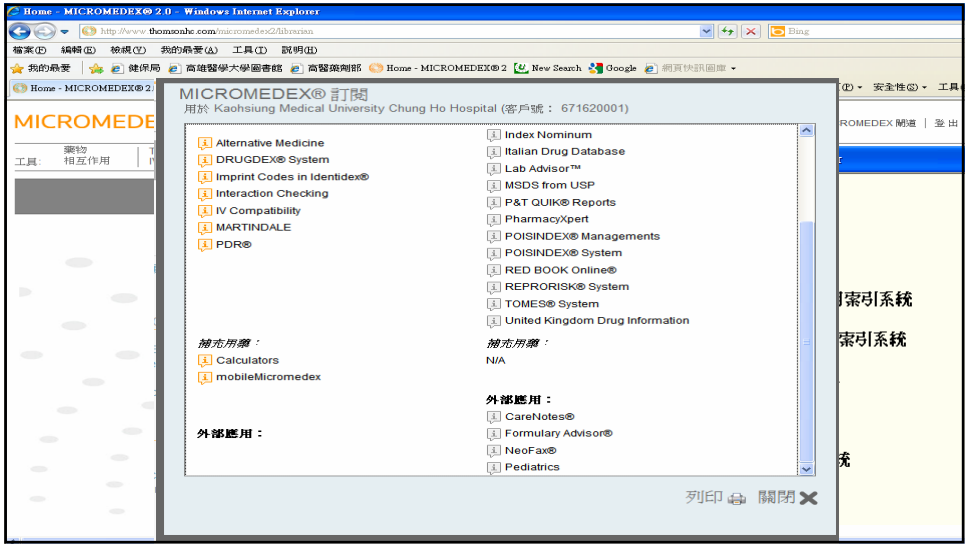
Davies's Textbook of Adverse Drug Reactions



Meyler's side effects of drugs

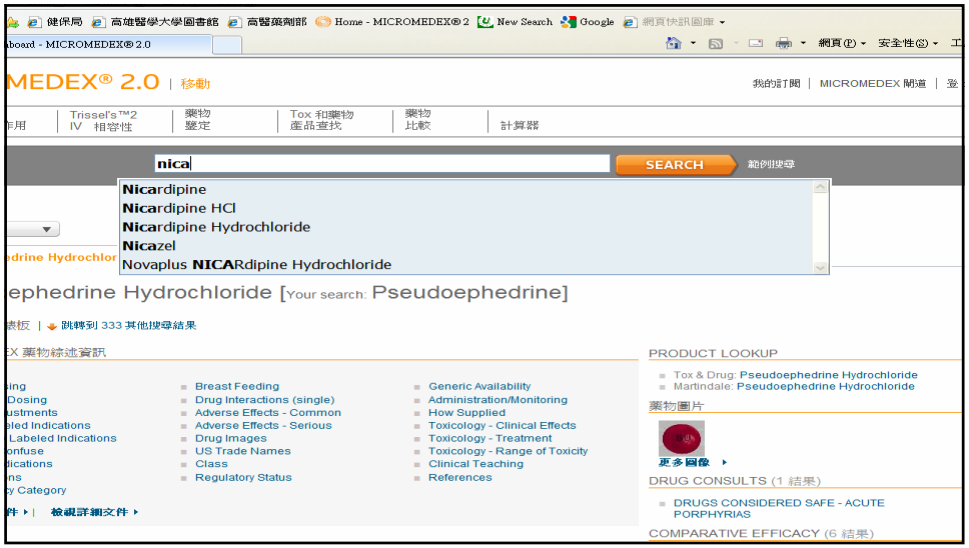


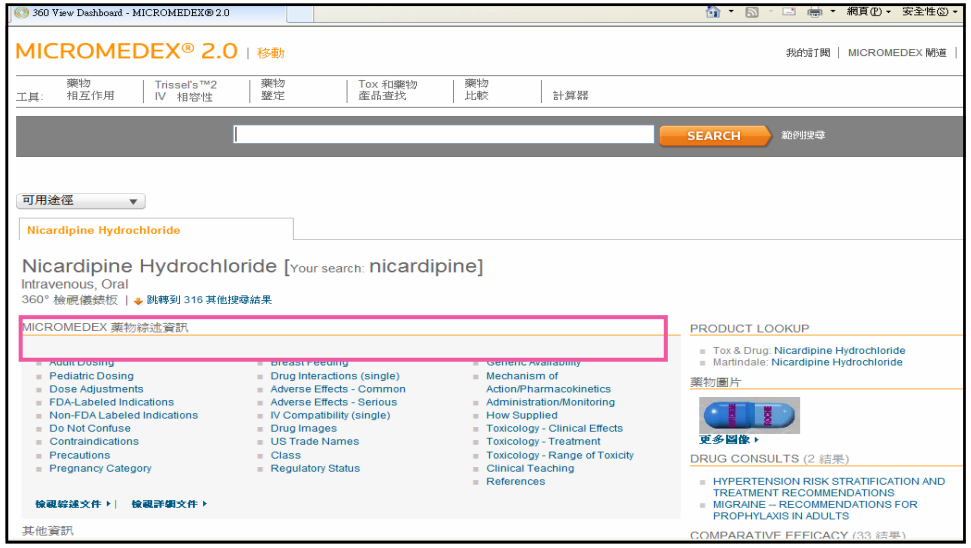


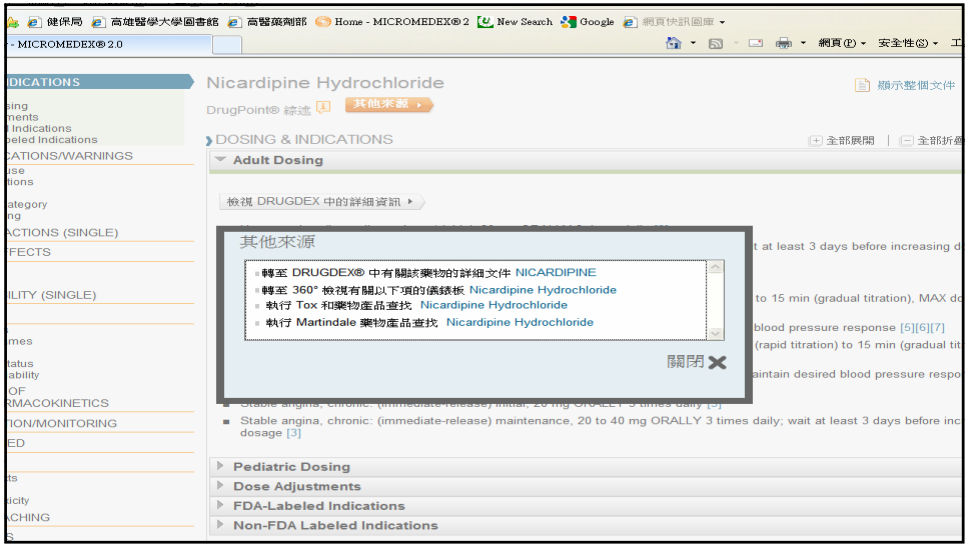


1. Perdipine (nicardipine)為例
2. Harnalidge (tamsulosin)為例

藥品相關資訊查詢

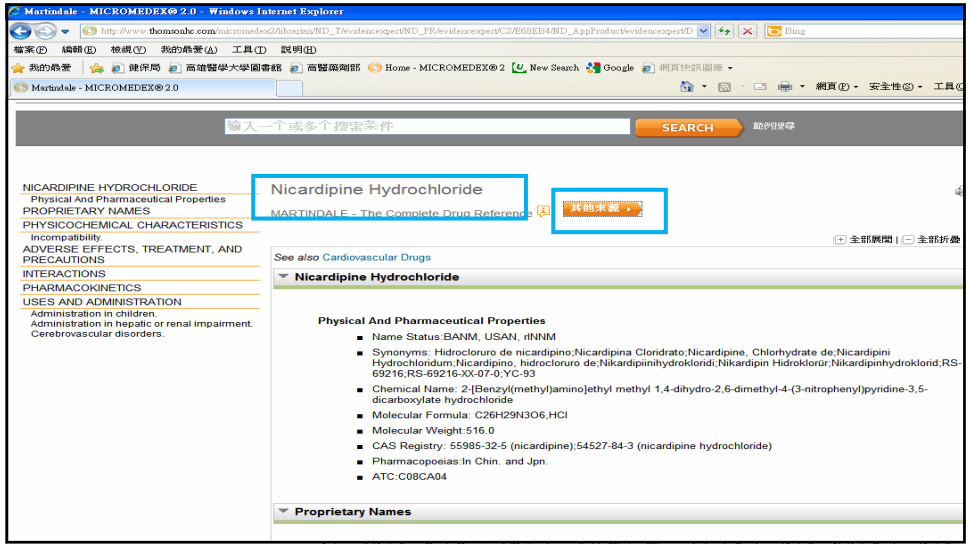


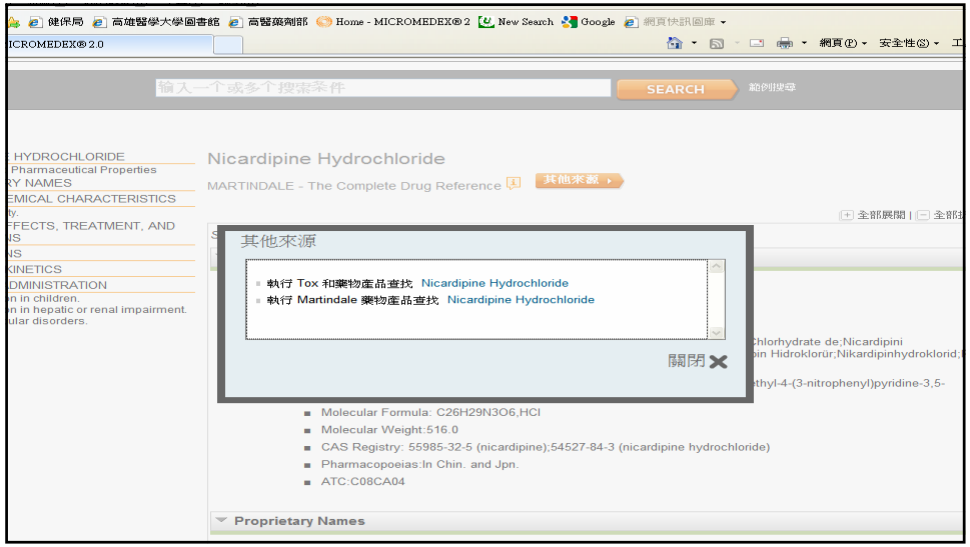





MICROMEDEX® 2.0 | 移動
perdipine
SEARCH
不見得每一種商品名都找得到
如果可以的話盡量用學名去搜尋
Nicardipine Hydrochloride
Nicardipine Hydrochloride [Your search: Nicardipine]
Intravenous, Oral
MICROMEDEX 藥物綜述資訊
Adult Dosing
Pediatric Dosing
Dose Adjustments
FDA-Labeled Indications
Non-FDA Labeled Indications
Do Not Confuse
Contraindications
Precautions
Pregnancy Category
Breast Feeding
Drug Interactions (single)
Adverse Effects - Common
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
References
PRODUCT LOOKUP
Tox & Drug: Nicardipine Hydrochloride
Martindale: Nicardipine Hydrochloride
藥物圖片
DRUG CONSULTS (2 結果)
HYPERTENSION RISK STRATIFICATION AND TREATMENT RECOMMENDATIONS
MIGRAINE -- RECOMMENDATIONS FOR PROPHYLAXIS IN ADULTS
COMPARATIVE EFFICACY (33 結果)


MICROMEDEX® 2.0 | 移動
我的訂閱
SEARCH
當出現紅字時，會以為自己輸入錯誤！！
您要尋找的是不是： isradipine, felodipine, isrodipine, medicine, benidipine
1 找到以下項的結果： "perdipine"
顯示： 全部 (1) | 藥物 (1)
頁面 1: 以下項的結果： 1-1
1. Nicardipine Hydrochloride
Drug: International Drug Information (Martindale)
頁面 1: 以下項的結果： 1-1


Martindale - MICROMEDEX® 2.0 - Windows Internet Explorer
SEARCH
NICARDIPINE HYDROCHLORIDE
Physical And Pharmaceutical Properties
PROPRIETARY NAMES
PHYSICOCHEMICAL CHARACTERISTICS
Incompatibility
ADVERSE EFFECTS, TREATMENT, AND PRECAUTIONS
INTERACTIONS
PHARMACOKINETICS
USES AND ADMINISTRATION
Administration in children.
Administration in hepatic or renal impairment.
Cerebrovascular disorders.
Nicardipine Hydrochloride
MARTINDALE - The Complete Drug Reference
其他來源
See also Cardiovascular Drugs
Nicardipine Hydrochloride
Physical And Pharmaceutical Properties
Name Status:BANM, USAN, rINNM
Synonyms: Hidrocloruro de nicardipino;Nicardipina Cloridrato;Nicardipine, Chlorhydrate de;Nicardipini Hydrochloridum;Nicardipino, hidrocloruro de;Nikardipiinihydrokloridi;Nikardipin Hidroklorür;Nikardipinhydroklorid;RS-69216;RS-69216-XX-07-0;YC-93
Chemical Name: 2-[Benzyl(methyl)amino]ethyl methyl 1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)pyridine-3,5-dicarboxylate hydrochloride
Molecular Formula: C26H29N3O6,HCl
Molecular Weight:516.0
CAS Registry: 55985-32-5 (nicardipine);54527-84-3 (nicardipine hydrochloride)
Pharmacopoeias:In Chin. and Jpn.
ATC:C08CA04
Proprietary Names


SEARCH
Nicardipine Hydrochloride
MARTINDALE - The Complete Drug Reference
其他來源
執行 Tox 和藥物產品查找 Nicardipine Hydrochloride
執行 Martindale 藥物產品查找 Nicardipine Hydrochloride
關閉
Molecular Formula: C26H29N3O6,HCl
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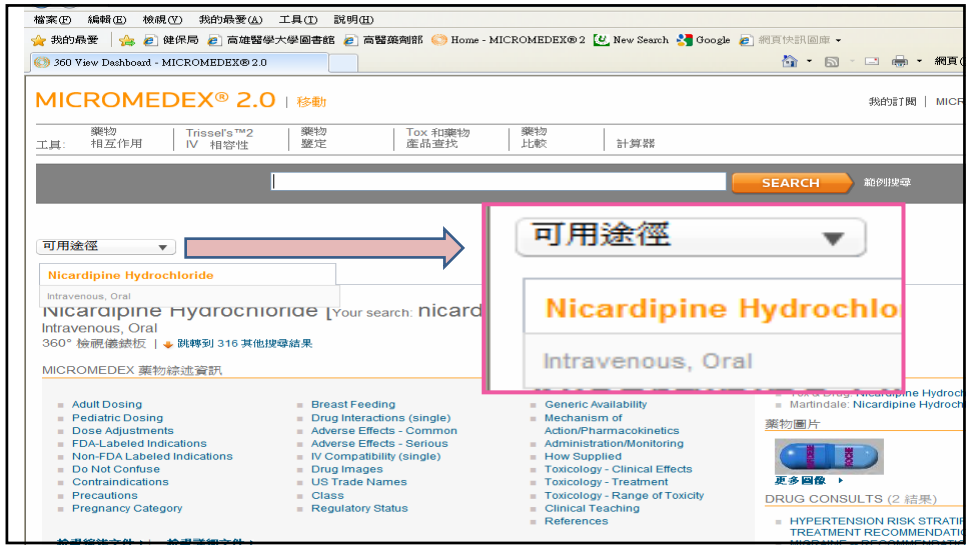
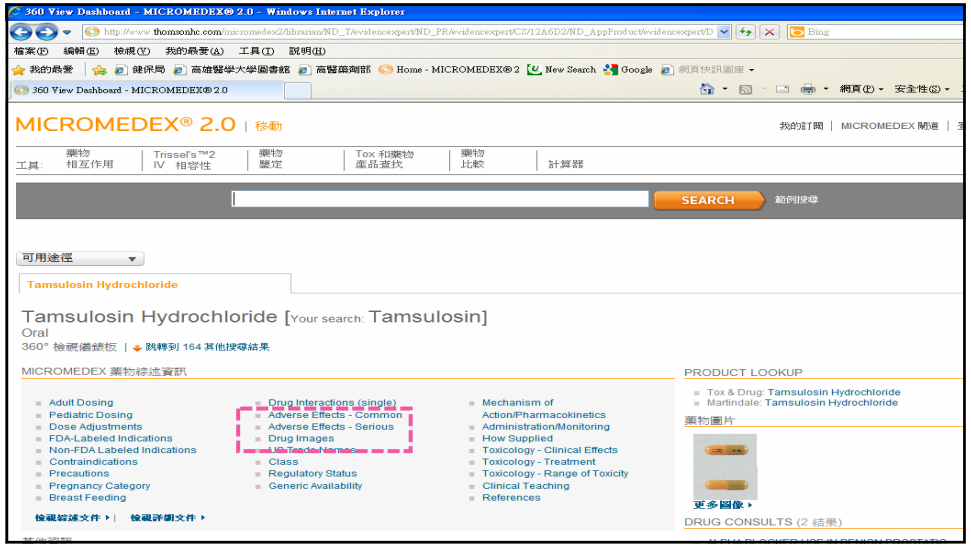
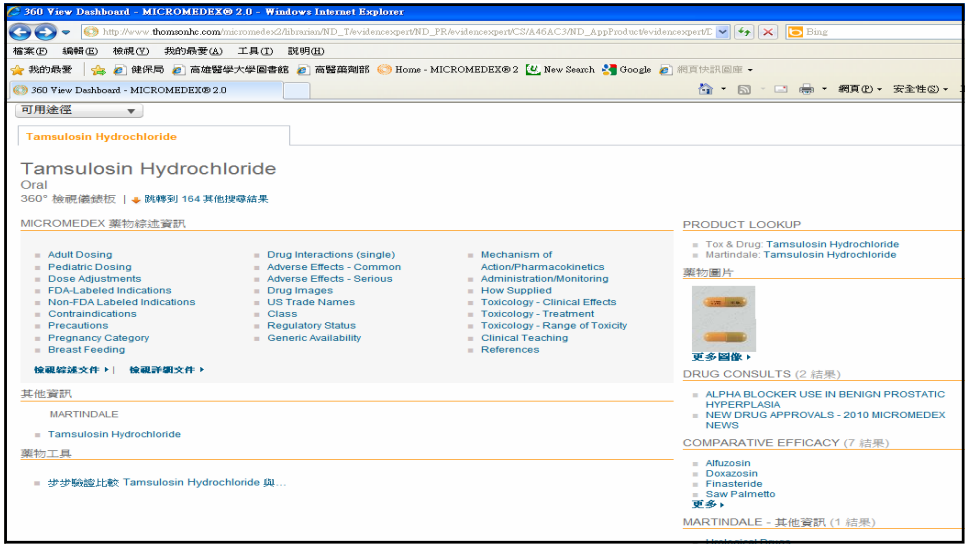

MICROMEDEX® 2.0 | 移動
SEARCH
可用途徑
Nicardipine Hydrochloride
Intravenous, Oral
360° 檢視儀錶板 | 跳轉到 316 其他搜尋結果
MICROMEDEX 藥物綜述資訊
Adult Dosing
Pediatric Dosing
Dose Adjustments
FDA-Labeled Indications
Non-FDA Labeled Indications
Do Not Confuse
Contraindications
Precautions
Pregnancy Category
Breast Feeding
Drug Interactions (single)
Adverse Effects - Common
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
References
藥物圖片
更多圖像
DRUG CONSULTS (2 結果)
可用途徑
Nicardipine Hydrochlo
Intravenous, Oral


Nicardipine intravenous bolus dosing for acutel... [Anesth Analg. 1999] - PubMed - NCBI - Windows Internet Explorer
NCBI Resources How To
My NCBI Sign In
PubMed
Search
Advanced
Help
Display Settings: Abstract
Send to:
Performing your original search, nicardipine bolus, in PubMed will retrieve 100 records.
Anesth Analg. 1999 Nov;89(5):1116-23.
Nicardipine intravenous bolus dosing for acutely decreasing arterial blood pressure during general anesthesia for cardiac operations: pharmacokinetics, pharmacodynamics, and associated effects on left ventricular function.
Cheung AT, Guvakov DV, Weiss SJ, Savino JS, Salgo IS, Meng QC.
Department of Anesthesia, University of Pennsylvania, Philadelphia 19104-4283, USA. cheungal@mail.med.upenn.edu
Abstract
The objective of this study was to evaluate the efficacy of nicardipine, a dihydropyridine calcium channel antagonist, administered as an IV bolus dose to acutely decrease arterial pressure in anesthetized cardiac surgical patients. We performed a double-blind, randomized, self-controlled, dose-ranging study in 40 adult cardiac surgical patients to determine the pharmacokinetics and pharmacodynamics of nicardipine 0.25 mg, 0.50 mg, 1.00 mg, and 2.00 mg administered as an IV bolus. Transesophageal echocardiography was used to assess left ventricular preload, afterload, and global systolic function. Plasma nicardipine concentration was measured using high-performance liquid chromatography. Nicardipine selectively decreased arterial pressure in a dose-dependent manner with a maximum response within 100 s and recovery to half the maximum response within 3-7 min without associated changes in heart rate. The decreases in arterial pressure were associated with only small decreases in left ventricular end-systolic wall stress and small increases in global left ventricular systolic function without changes in left ventricular end-diastolic cavity area or cardiac output. The time course for nicardipine bolus was consistent with a two-compartment pharmacokinetic model with rapid redistribution from a small central compartment. IMPLICATIONS: Nicardipine was effective for selectively decreasing arterial blood pressure acutely, but had no effects on ventricular preload or cardiac output. The absence of dose-dependent changes in cardiac output, left ventricular systolic performance, and left ventricular afterload despite significant decreases in arterial pressure suggested that nicardipine had a small negative inotropic action.
PMID: 10553821 [PubMed - indexed for MEDLINE] Free full text
Publication Types, MeSH Terms, Substances
LinkOut - more resources
Save items
Add to Favorites
Related citations in PubMed
Cited by 1 PubMed Central article
Related information


360 View Dashboard - MICROMEDEX® 2.0 - Windows Internet Explorer
MICROMEDEX® 2.0 | 移動
SEARCH
可用途徑
Tamsulosin Hydrochloride
Tamsulosin Hydrochloride [Your search: Tamsulosin]
Oral
360° 檢視儀錶板 | 跳轉到 164 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
Contraindications
Precautions
Pregnancy Category
Breast Feeding
Drug Interactions (single)
Adverse Effects - Common
Adverse Effects - Serious
Drug Images
Class
Regulatory Status
Generic Availability
Mechanism of Action/Pharmacokinetics
Administration/Monitoring
How Supplied
Toxicology - Clinical Effects
Toxicology - Treatment
Toxicology - Range of Toxicity
Clinical Teaching
References
PRODUCT LOOKUP
Tox & Drug: Tamsulosin Hydrochloride
Martindale: Tamsulosin Hydrochloride
藥物圖片
更多圖像
DRUG CONSULTS (2 結果)


360 View Dashboard - MICROMEDEX® 2.0 - Windows Internet Explorer
可用途徑
Tamsulosin Hydrochloride
Tamsulosin Hydrochloride
Oral
360° 檢視儀錶板 | 跳轉到 164 其他搜尋結果
MICROMEDEX 藥物綜述資訊
Adult Dosing
Pediatric Dosing
Dose Adjustments
FDA-Labeled Indications
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Toxicology - Clinical Effects
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Clinical Teaching
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其他資訊
MARTINDALE
Tamsulosin Hydrochloride
藥物工具
步步驗證比較 Tamsulosin Hydrochloride 與...
PRODUCT LOOKUP
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Martindale: Tamsulosin Hydrochloride
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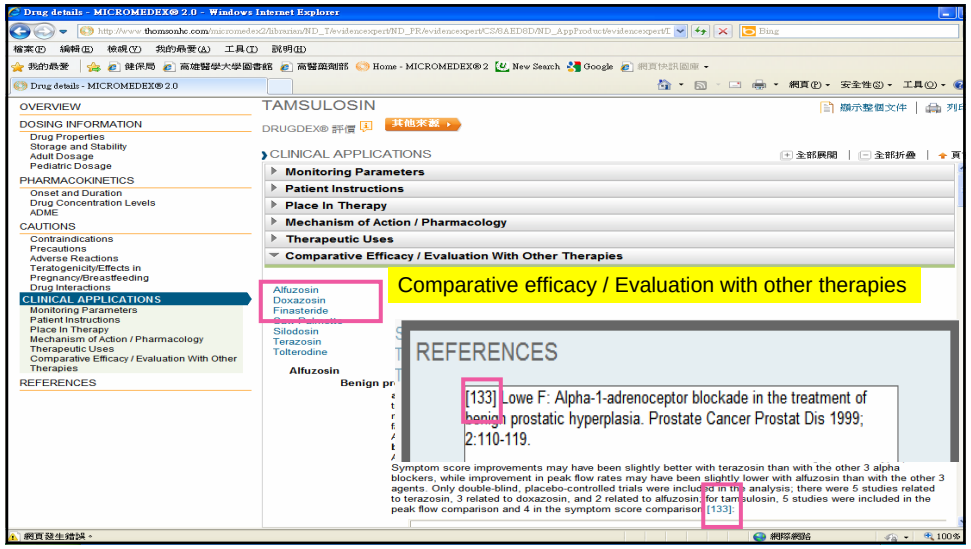
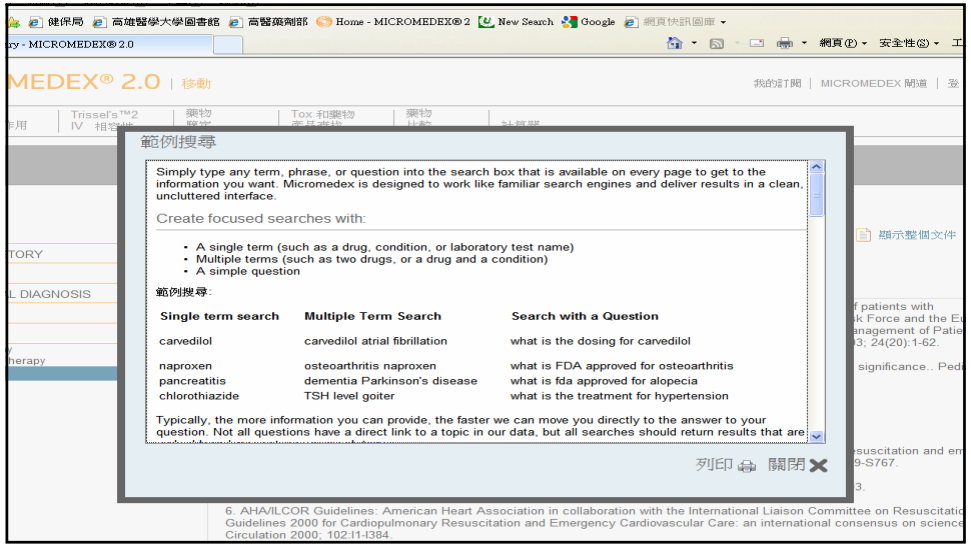
更多圖像
DRUG CONSULTS (2 結果)
ALPHA BLOCKER USE IN BENIGN PROSTATIC HYPERPLASIA
NEW DRUG APPROVALS - 2010 MICROMEDEX NEWS
COMPARATIVE EFFICACY (7 結果)
Alfuzosin
Doxazosin
Finasteride
Saw Palmetto
更多
MARTINDALE - 其他資訊 (1 結果)



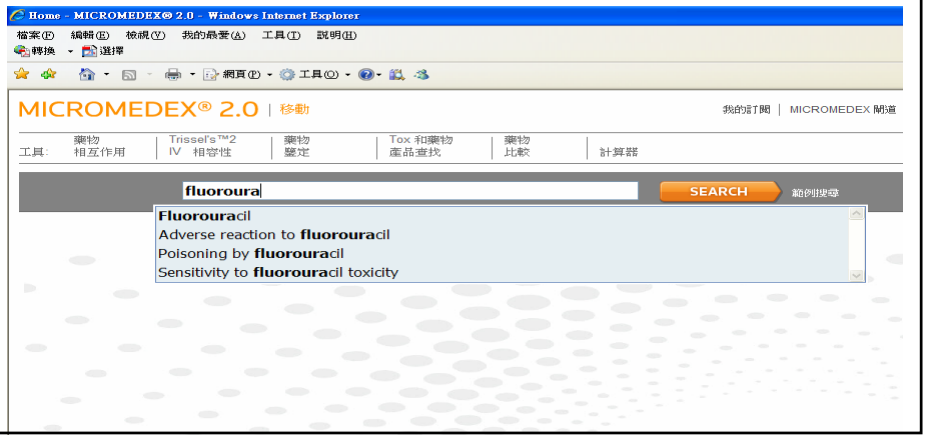


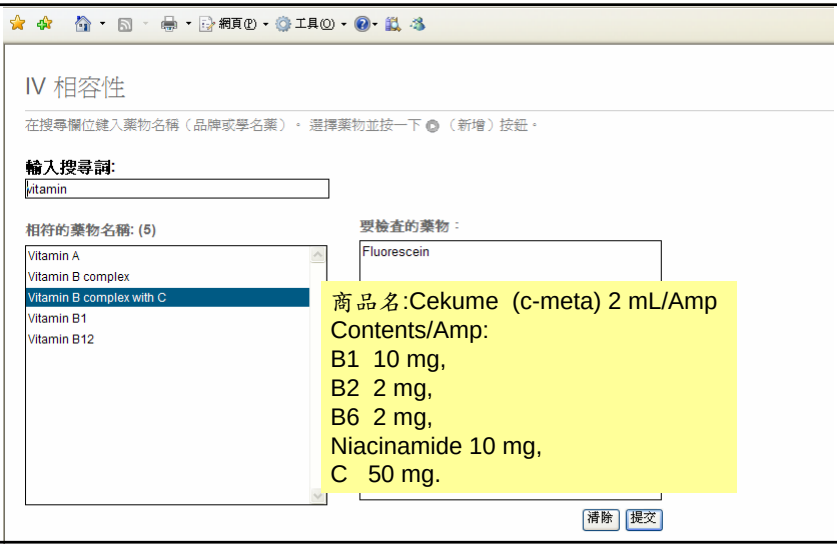
搜尋詞彙		搜尋範例
劑量	劑量 + 藥物	· 異丙酚(propofol)劑量 · 巴利昔單抗(basiliximab)劑量 · 米諾地爾(minoxidil)劑量為多少
療程（療法）	療程 + 藥物	· 艾斯索匹克隆(eszopiclone)療程 · 結核徵素(capreomycin)治療
病因	病因 + 藥物 + 條件	· 多西紫杉醇(docetaxel)造成對指甲的損害
FDA-核准-標籤(FDA-核准)	FDA-核准-標籤+ 藥物 FDA-核准-標籤+ 條件 + 藥物	· 核准 苯佐那酯(benzonatate) · 舒馬普坦(sumatriptan)FDA-核准-標籤用藥 · 利妥昔單抗(rituximb)為類風濕關節炎(rheumtoid arthritis)核准用藥 · 東莨菪鹼(Scopolamine)為FDA-核准-的暈車用藥
非FDA-核准-標籤(非FDA-核准)	非FDA-核准-標籤+ 條件 + 藥物	· 非FDA-核准-標籤用藥：衛後傷口感染過氧化苯 (benzoyl peroxide) · 專門治療過度分泌唾液的東莨菪鹼為非FDA-核准-標籤用藥
藥物作用	藥物作用 + 藥物	· 鹽酸胺碘酮(amiodarone)的藥物作用

1. 5-Fu v.s C-meta
2. KCL

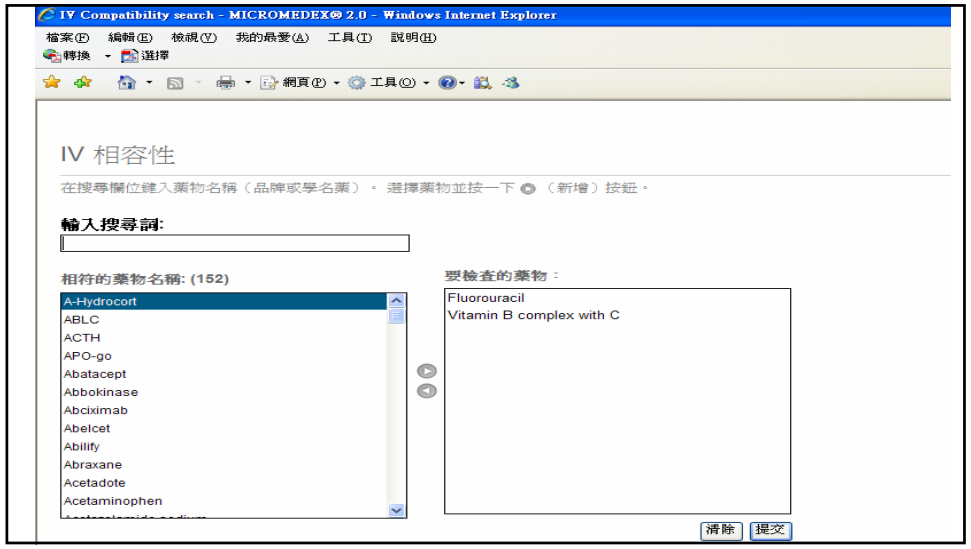
配伍禁忌或安定性為例

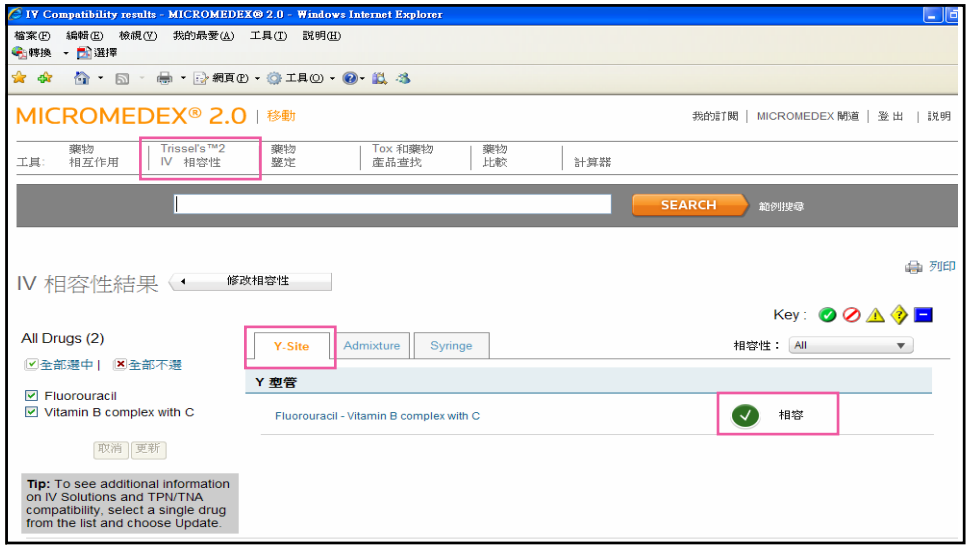
5-Fu v.s C-meta (cekunme)

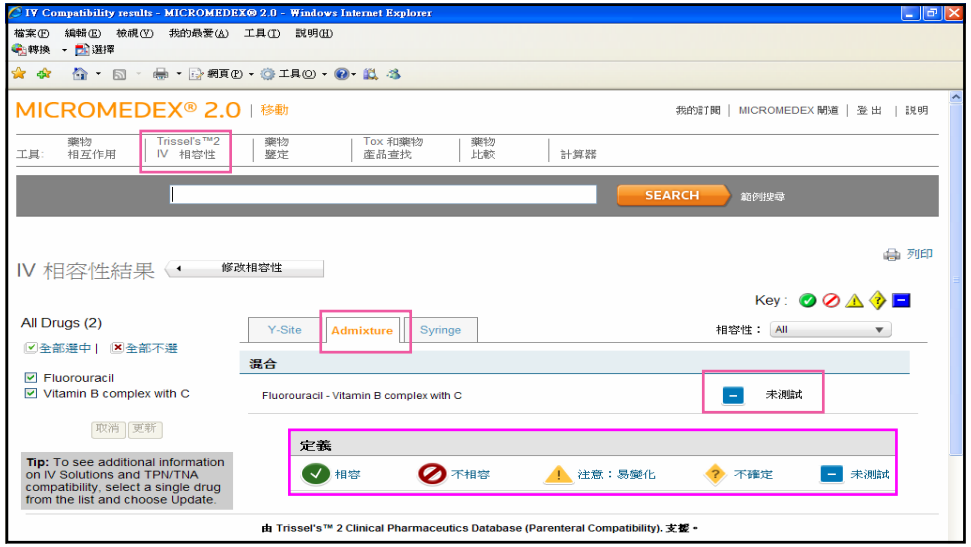


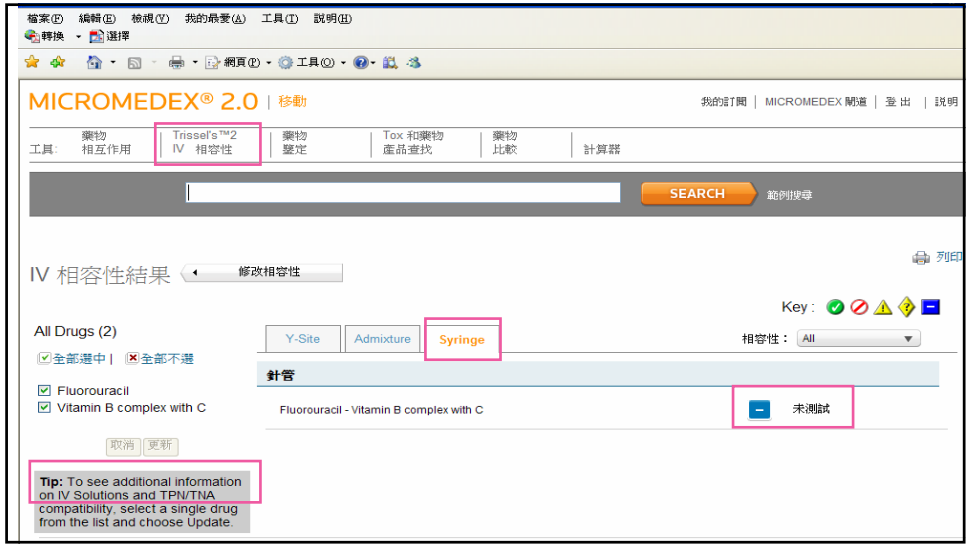


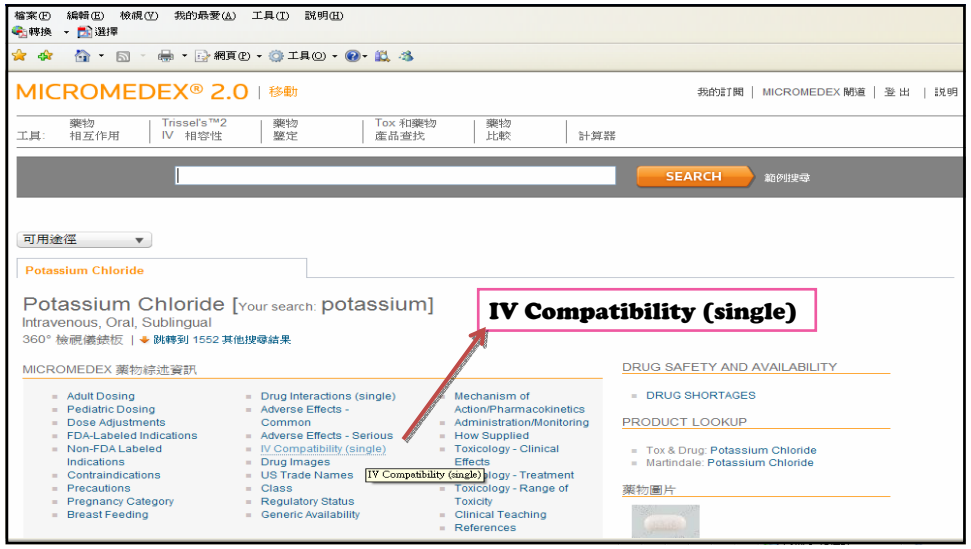
商品名:Cekume (c-meta) 2 mL/Amp
Contents/Amp:
B1 10 mg,
B2 2 mg,
B6 2 mg,
Niacinamide 10 mg,
C 50 mg.

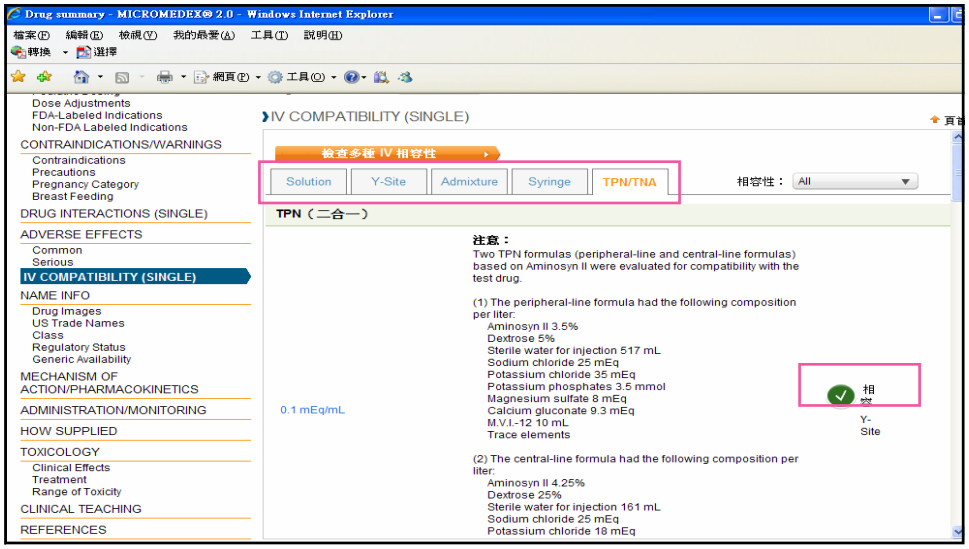

IV Compatibility search - MICROMEDEX® 2.0 - Windows Internet Explorer
IV 相容性
在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下 （新增）按鈕。
輸入搜尋詞:
相符的藥物名稱: (152)
A-Hydrocort
ABLC
ACTH
APO-go
Abatacept
Abbokinase
Abciximab
Abelcet
Abilify
Abraxane
Acetadote
Acetaminophen
要檢查的藥物：
Fluorouracil
Vitamin B complex with C
清除
提交


IV Compatibility results - MICROMEDEX® 2.0 - Windows Internet Explorer
MICROMEDEX® 2.0 | 移動
我的訂閱 | MICROMEDEX 開道 | 登 出 | 說明
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
SEARCH
範例搜尋
IV 相容性結果
修改相容性
列印
Key :
All Drugs (2)
全部選中 | 全部不選
Fluorouracil
Vitamin B complex with C
Y-Site
Admixture
Syringe
相容性： All
Y 型管
Fluorouracil - Vitamin B complex with C
相容
取消 更新
Tip: To see additional information on IV Solutions and TPN/TNA compatibility, select a single drug from the list and choose Update.

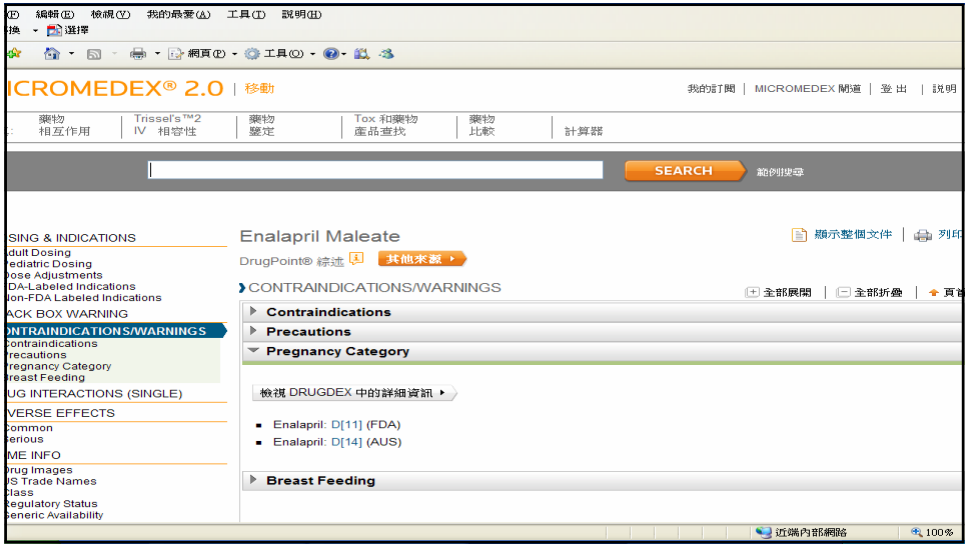

IV Compatibility results - MICROMEDEX® 2.0 - Windows Internet Explorer
MICROMEDEX® 2.0 | 移動
我的訂閱 | MICROMEDEX 開道 | 登 出 | 說明
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
SEARCH
範例搜尋
IV 相容性結果
修改相容性
列印
Key :
All Drugs (2)
全部選中 | 全部不選
Fluorouracil
Vitamin B complex with C
Y-Site
Admixture
Syringe
相容性： All
混合
Fluorouracil - Vitamin B complex with C
未測試
定義
相容
不相容
注意：易變化
不確定
未測試
取消 更新
Tip: To see additional information on IV Solutions and TPN/TNA compatibility, select a single drug from the list and choose Update.
Trissel's™ 2 Clinical Pharmaceutics Database (Parenteral Compatibility). 支援 -

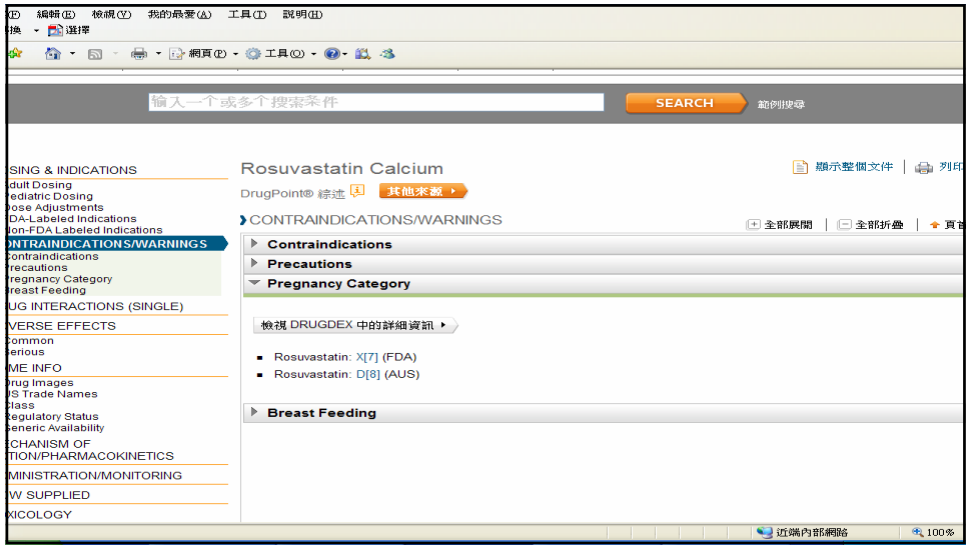

MICROMEDEX® 2.0 | 移動
我的訂閱 | MICROMEDEX 開道 | 登 出 | 說明
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
SEARCH
範例搜尋
IV 相容性結果
修改相容性
列印
Key :
All Drugs (2)
全部選中 | 全部不選
Fluorouracil
Vitamin B complex with C
Y-Site
Admixture
Syringe
相容性： All
針管
Fluorouracil - Vitamin B complex with C
未測試
取消 更新
Tip: To see additional information on IV Solutions and TPN/TNA compatibility, select a single drug from the list and choose Update.

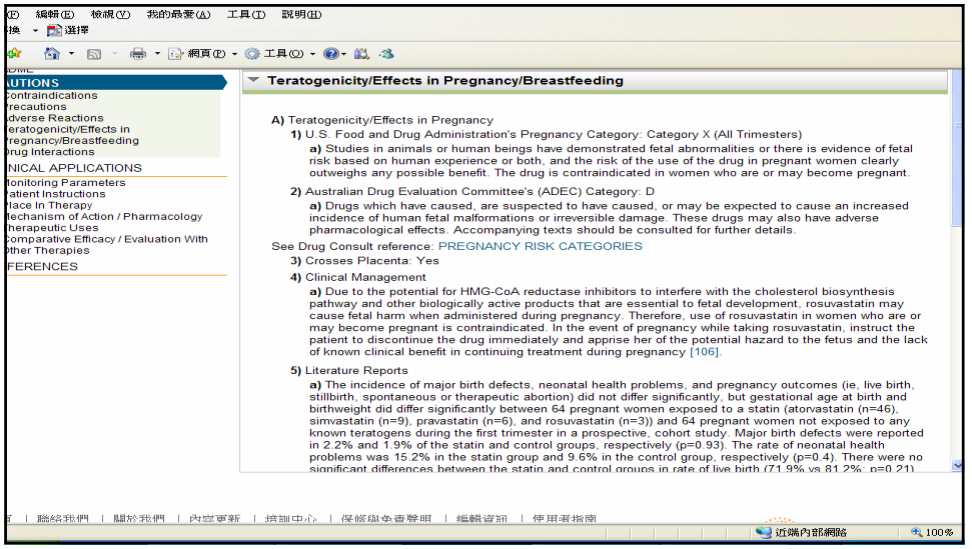

MICROMEDEX® 2.0 | 移動
SEARCH
Potassium Chloride [Your search: potassium]
Intravenous, Oral, Sublingual
IV Compatibility (single)
MICROMEDEX 藥物綜述資訊
Adult Dosing
Pediatric Dosing
Dose Adjustments
FDA-Labeled Indications
Non-FDA Labeled Indications
Contraindications
Precautions
Pregnancy Category
Breast Feeding
Drug Interactions (single)
Adverse Effects - Common
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
References
DRUG SAFETY AND AVAILABILITY
DRUG SHORTAGES
PRODUCT LOOKUP
Tox & Drug: Potassium Chloride
Martindale: Potassium Chloride
藥物圖片

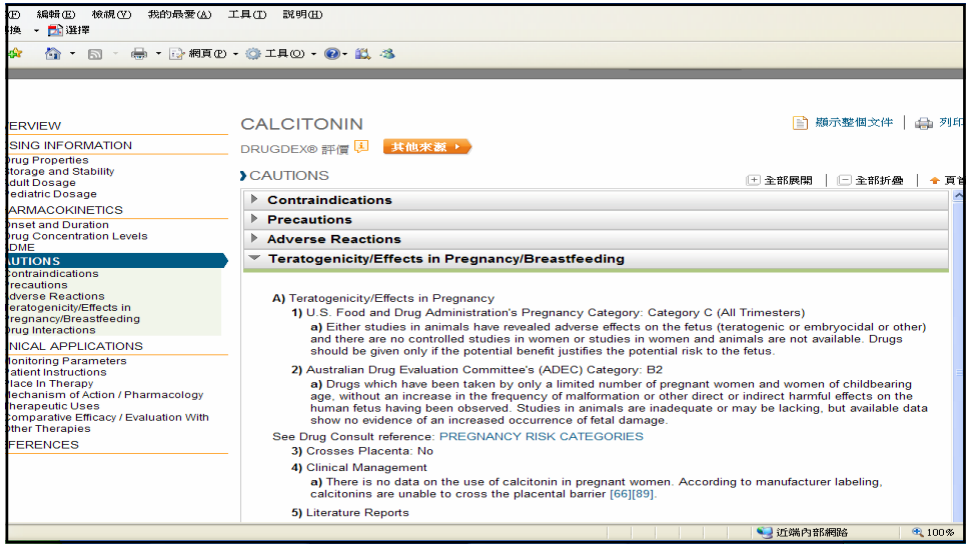

Drug summary - MICROMEDEX® 2.0 - Windows Internet Explorer
IV COMPATIBILITY (SINGLE)
檢查多種 IV 相容性
Solution
Y-Site
Admixture
Syringe
TPN/TNA
相容性：
TPN（二合一）
注意：
Two TPN formulas (peripheral-line and central-line formulas) based on Aminosyn II were evaluated for compatibility with the test drug.
(1) The peripheral-line formula had the following composition per liter:
Aminosyn II 3.5%
Dextrose 5%
Sterile water for injection 517 mL
Sodium chloride 25 mEq
Potassium chloride 35 mEq
Potassium phosphates 3.5 mmol
Magnesium sulfate 8 mEq
Calcium gluconate 9.3 mEq
M.V.I.-12 10 mL
Trace elements
0.1 mEq/mL
相容
Y-Site
(2) The central-line formula had the following composition per liter:
Aminosyn II 4.25%
Dextrose 25%
Sterile water for injection 161 mL
Sodium chloride 25 mEq
Potassium chloride 18 mEq
DRUG INTERACTIONS (SINGLE)
ADVERSE EFFECTS
IV COMPATIBILITY (SINGLE)
NAME INFO
MECHANISM OF ACTION/PHARMACOKINETICS
ADMINISTRATION/MONITORING
HOW SUPPLIED
TOXICOLOGY
CLINICAL TEACHING
REFERENCES

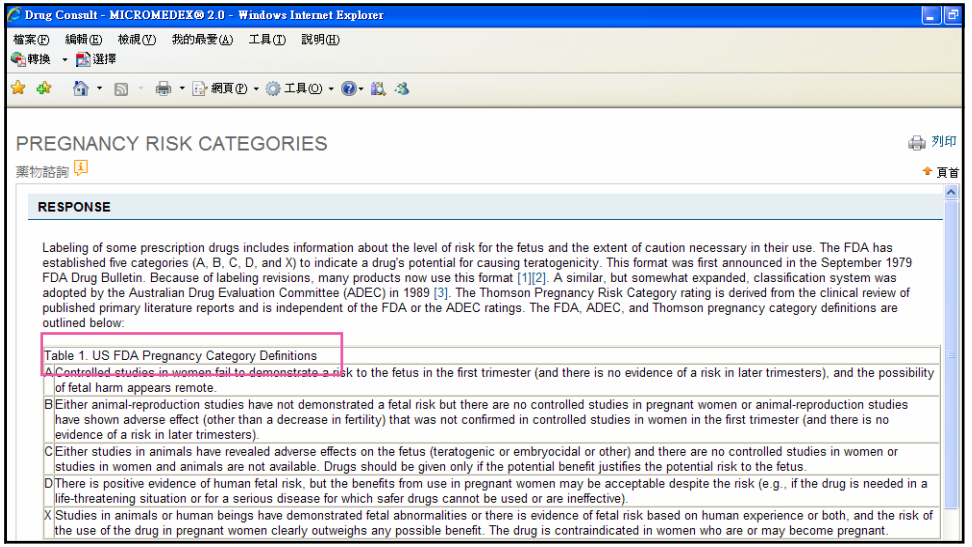
懷孕用藥分級

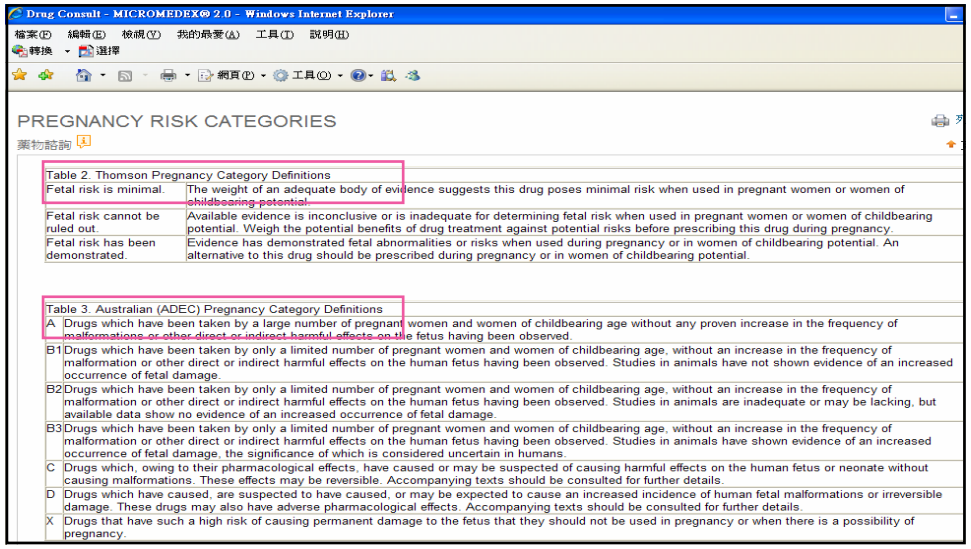

SEARCH
Enalapril Maleate
DrugPoint® 綜述
其他來源
CONTRAINDICATIONS/WARNINGS
Contraindications
Precautions
Pregnancy Category
檢視 DRUGDEX 中的詳細資訊
Enalapril: D[11] (FDA)
Enalapril: D[14] (AUS)
Breast Feeding

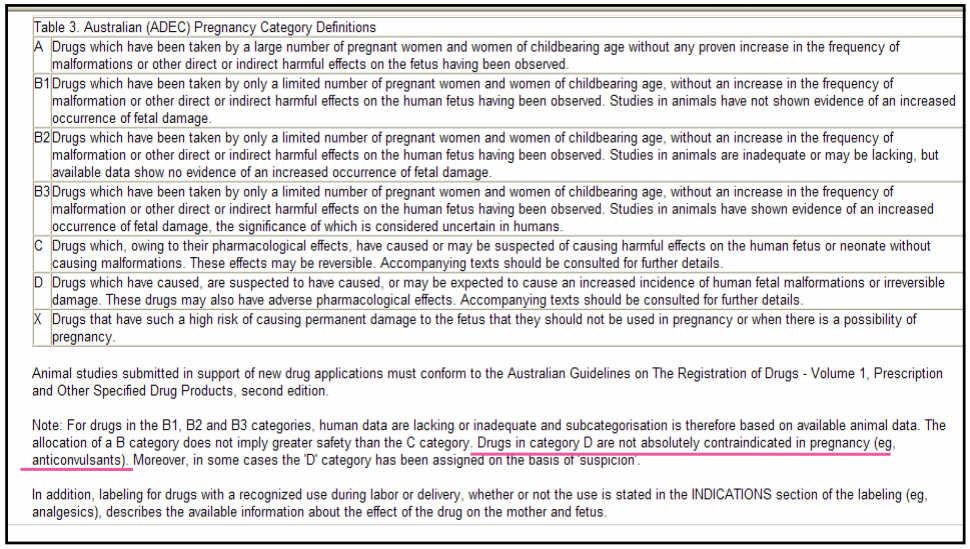

輸入一个或多个搜索条件
SEARCH
Rosuvastatin Calcium
DrugPoint® 綜述
其他來源
CONTRAINDICATIONS/WARNINGS
Contraindications
Precautions
Pregnancy Category
檢視 DRUGDEX 中的詳細資訊
Rosuvastatin: X[7] (FDA)
Rosuvastatin: D[8] (AUS)
Breast Feeding


Teratogenicity/Effects in Pregnancy/Breastfeeding
A) Teratogenicity/Effects in Pregnancy
1) U.S. Food and Drug Administration's Pregnancy Category: Category X (All Trimesters)
a) Studies in animals or human beings have demonstrated fetal abnormalities or there is evidence of fetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant.
2) Australian Drug Evaluation Committee's (ADEC) Category: D
a) Drugs which have caused, are suspected to have caused, or may be expected to cause an increased incidence of human fetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Accompanying texts should be consulted for further details.
See Drug Consult reference: PREGNANCY RISK CATEGORIES
3) Crosses Placenta: Yes
4) Clinical Management
a) Due to the potential for HMG-CoA reductase inhibitors to interfere with the cholesterol biosynthesis pathway and other biologically active products that are essential to fetal development, rosuvastatin may cause fetal harm when administered during pregnancy. Therefore, use of rosuvastatin in women who are or may become pregnant is contraindicated. In the event of pregnancy while taking rosuvastatin, instruct the patient to discontinue the drug immediately and apprise her of the potential hazard to the fetus and the lack of known clinical benefit in continuing treatment during pregnancy [106].
5) Literature Reports
a) The incidence of major birth defects, neonatal health problems, and pregnancy outcomes (ie, live birth, stillbirth, spontaneous or therapeutic abortion) did not differ significantly, but gestational age at birth and birthweight did differ significantly between 64 pregnant women exposed to a statin (atorvastatin (n=46), simvastatin (n=9), pravastatin (n=6), and rosuvastatin (n=3)) and 64 pregnant women not exposed to any known teratogens during the first trimester in a prospective, cohort study. Major birth defects were reported in 2.2% and 1.9% of the statin and control groups, respectively (p=0.93). The rate of neonatal health problems was 15.2% in the statin group and 9.6% in the control group, respectively (p=0.4). There were no


CALCITONIN
DRUGDEX® 評價
其他來源
CAUTIONS
Contraindications
Precautions
Adverse Reactions
Teratogenicity/Effects in Pregnancy/Breastfeeding
A) Teratogenicity/Effects in Pregnancy
1) U.S. Food and Drug Administration's Pregnancy Category: Category C (All Trimesters)
a) Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.
2) Australian Drug Evaluation Committee's (ADEC) Category: B2
a) Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage.
See Drug Consult reference: PREGNANCY RISK CATEGORIES
3) Crosses Placenta: No
4) Clinical Management
a) There is no data on the use of calcitonin in pregnant women. According to manufacturer labeling, calcitonins are unable to cross the placental barrier [66][89].
5) Literature Reports


Drug Consult - MICROMEDEX® 2.0 - Windows Internet Explorer
PREGNANCY RISK CATEGORIES
列印
RESPONSE
Labeling of some prescription drugs includes information about the level of risk for the fetus and the extent of caution necessary in their use. The FDA has established five categories (A, B, C, D, and X) to indicate a drug's potential for causing teratogenicity. This format was first announced in the September 1979 FDA Drug Bulletin. Because of labeling revisions, many products now use this format [1][2]. A similar, but somewhat expanded, classification system was adopted by the Australian Drug Evaluation Committee (ADEC) in 1989 [3]. The Thomson Pregnancy Risk Category rating is derived from the clinical review of published primary literature reports and is independent of the FDA or the ADEC ratings. The FDA, ADEC, and Thomson pregnancy category definitions are outlined below:
Table 1. US FDA Pregnancy Category Definitions
A Controlled studies in women fail to demonstrate a risk to the fetus in the first trimester (and there is no evidence of a risk in later trimesters), and the possibility of fetal harm appears remote.
B Either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).
C Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.
D There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).
X Studies in animals or human beings have demonstrated fetal abnormalities or there is evidence of fetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant.



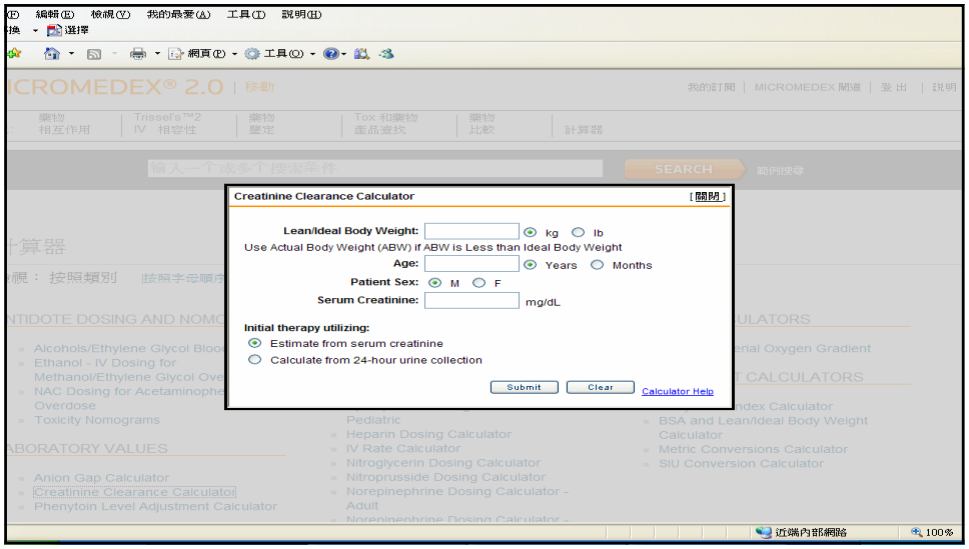


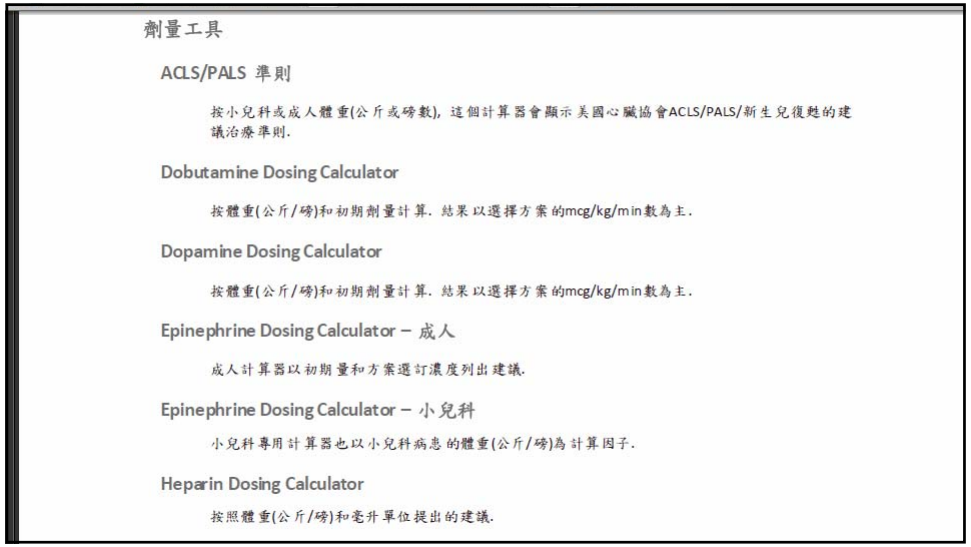
高醫的處方集

- 藥品懷孕分級：臨床使用、兒科學會、FDA 、ADEC
- 自然畸胎的發生率估計約 2 - 3.5%
- A：有完整的實驗證實，對人類胎兒沒有危害。
- B：動物實驗顯示對胎兒沒有危害，但對人類胎兒的安全性缺乏足夠的證據；或對動物胎兒有危險，但對人類的研究未能證實此危險性。
- C：動物實驗顯示對胎兒有不良影響，但在人類還沒有充分的研究；或是在動物或人類都還沒有充分的研究。在治療效益超過可能的危險性時才建議使用。
- D：有充分的證據顯示對胎兒有危險性，只有在治療效益明顯超過危險性時才可使用。
- X：動物和人類實驗均顯示有危險性，其危險性明顯超過治療效益。禁止使用於孕婦。

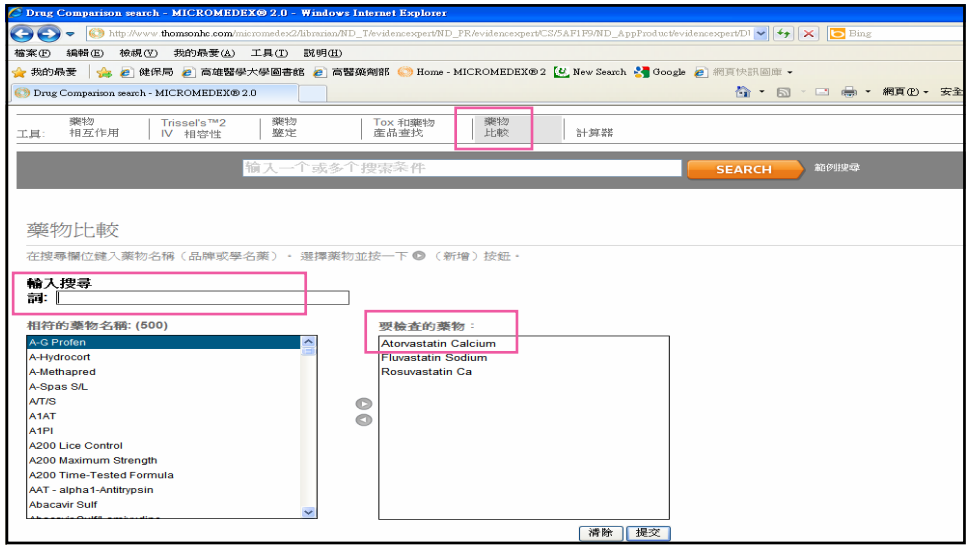
計算器

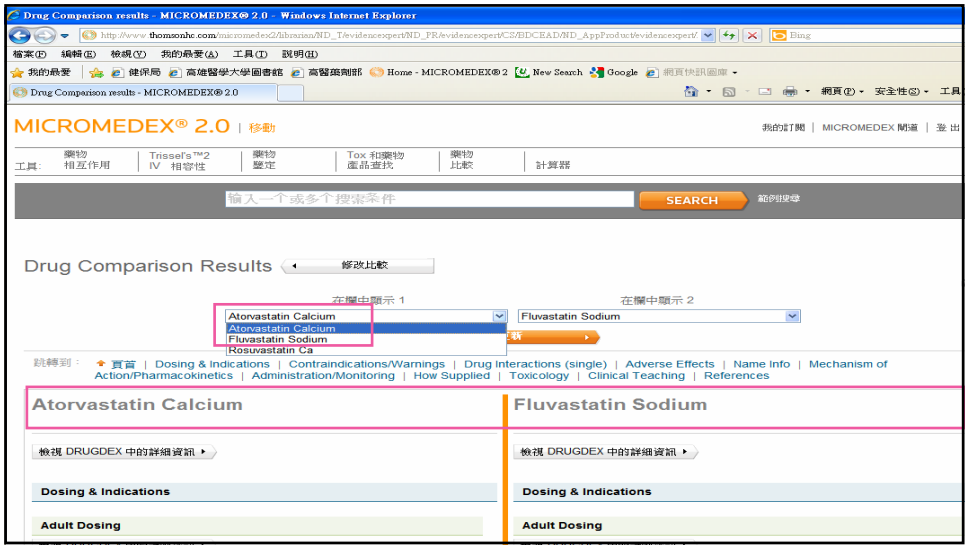

工具: 相互作用 | IV 相容性 | 鑒定 | 產品查找 | 比較 | 計算器
輸入一个或多个搜索条件
SEARCH
範例搜尋
MICROMEDEX® 2.0 | 移動
我的訂閱 | MICRO
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
輸入一个或多个搜索条件
SEARCH
計算器
檢視： 按照類別
ANTIDOTE DOSING AND NOMOGRAMS
Alcohols/Ethylene Glycol Overdose
Ethanol - IV Dosing for Methanol/Ethylene Glycol Overdose
NAC Dosing for Acetaminophen Overdose
Toxicity Nomograms
LABORATORY VALUES
Anion Gap Calculator
Creatinine Clearance Calculator
Phenytoin Level Adjustment Calculator
Epinephrine Dosing Calculator - Adult
Epinephrine Dosing Calculator - Pediatric
Heparin Dosing Calculator
IV Rate Calculator
Nitroglycerin Dosing Calculator
Nitroprusside Dosing Calculator
Norepinephrine Dosing Calculator - Adult
MEASUREMENT CALCULATORS
Body Mass Index Calculator
BSA and Lean/Ideal Body Weight Calculator
Metric Conversions Calculator
SIU Conversion Calculator

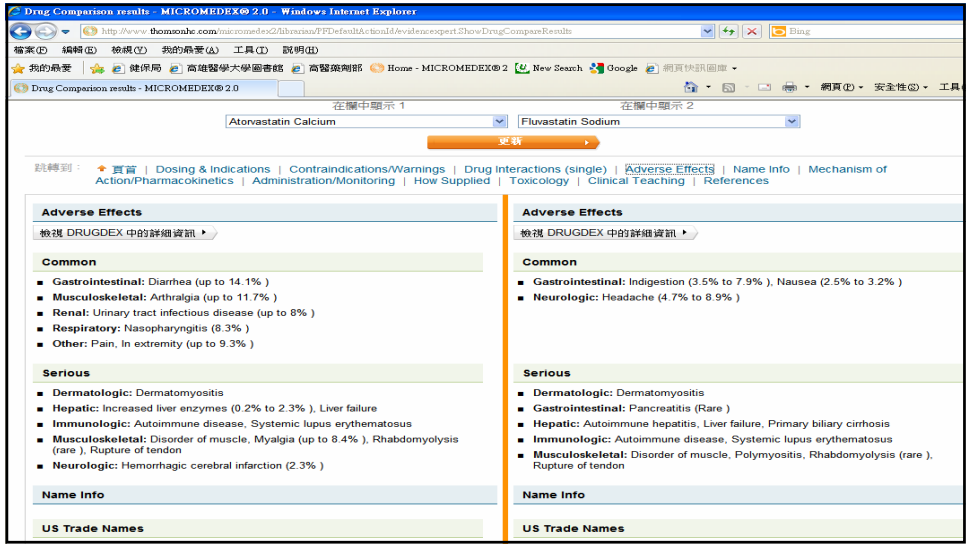

Creatinine Clearance Calculator
[關閉]
Lean/Ideal Body Weight: kg lb
Use Actual Body Weight (ABW) if ABW is Less than Ideal Body Weight
Age: Years Months
Patient Sex: M F
Serum Creatinine: mg/dL
Initial therapy utilizing:
Estimate from serum creatinine
Calculate from 24-hour urine collection
Submit
Clear
Calculator Help


劑量工具
ACLS/PALS 準則
按小兒科或成人體重(公斤或磅數), 這個計算器會顯示美國心臟協會ACLS/PALS/新生兒復甦的建議治療準則.
Dobutamine Dosing Calculator
按體重(公斤/磅)和初期劑量計算. 結果以選擇方案的mcg/kg/min數為主.
Dopamine Dosing Calculator
按體重(公斤/磅)和初期劑量計算. 結果以選擇方案的mcg/kg/min數為主.
Epinephrine Dosing Calculator – 成人
成人計算器以初期量和方案選訂濃度列出建議.
Epinephrine Dosing Calculator – 小兒科
小兒科專用計算器也以小兒科病患的體重(公斤/磅)為計算因子.
Heparin Dosing Calculator
按照體重(公斤/磅)和毫升單位提出的建議.

藥物比較



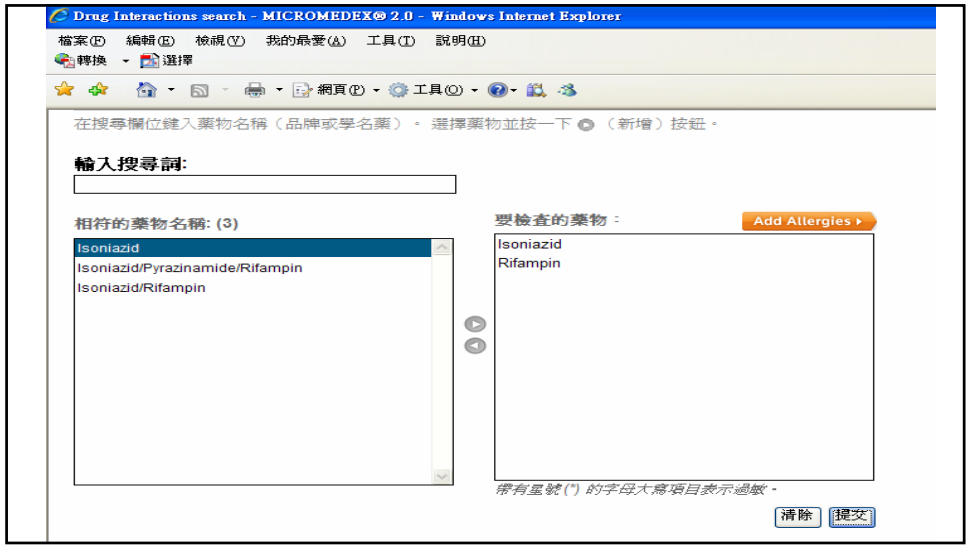


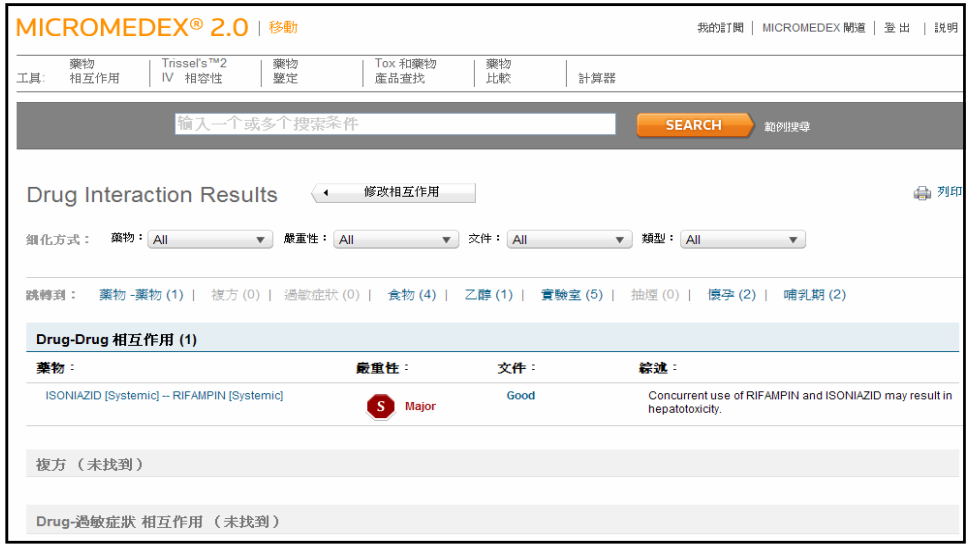


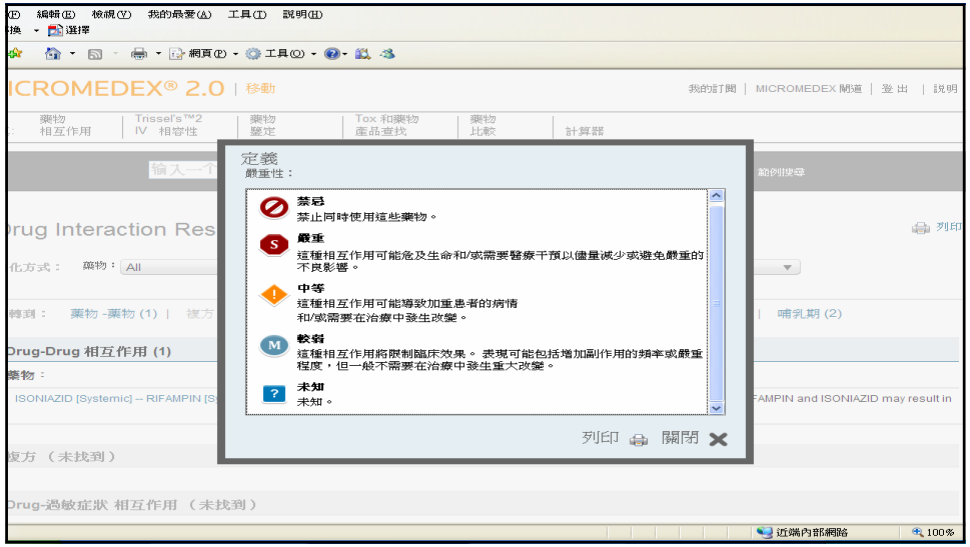
Rifampin and Isoniazid

交互作用為例


Drug Interactions search - MICROMEDEX® 2.0 - Windows Internet Explorer
MICROMEDEX® 2.0 | 移動
我的訂閱 | MICROMEDEX 閒逛
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
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:
rifamp
相符的藥物名稱: (1)
Rifampin
要檢查的藥物：
Add Allergies


Drug Interactions search - MICROMEDEX® 2.0 - Windows Internet Explorer
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: (3)
Isoniazid
Isoniazid/Pyrazinamide/Rifampin
Isoniazid/Rifampin
要檢查的藥物：
Add Allergies
Isoniazid
Rifampin
帶有星號(*)的字母大意項目表示過敏。
清除
提交


MICROMEDEX® 2.0 | 移動
我的訂閱 | MICROMEDEX 閒逛 | 登出 | 說明
工具: 藥物 相互作用 | Trissel's™2 IV 相容性 | 藥物 鑒定 | Tox 和藥物 產品查找 | 藥物 比較 | 計算器
輸入一个或多个搜索条件
SEARCH
範例搜尋
Drug Interaction Results
修改相互作用
列印
細化方式： 藥物： All 嚴重性： All 文件： All 類型： All
跳轉到： 藥物 -藥物 (1) | 複方 (0) | 過敏症狀 (0) | 食物 (4) | 乙醇 (1) | 實驗室 (5) | 抽煙 (0) | 懷孕 (2) | 哺乳期 (2)
Drug-Drug 相互作用 (1)
藥物： 嚴重性： 文件： 綜述：
ISONIAZID [Systemic] -- RIFAMPIN [Systemic]
Major
Good
Concurrent use of RIFAMPIN and ISONIAZID may result in hepatotoxicity.
複方 （未找到）
Drug-過敏症狀 相互作用 （未找到）


定義
嚴重性：
禁忌
禁止同時使用這些藥物。
嚴重
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
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
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
未知。
列印
關閉

INTERACTION DETAIL

Warning:

Concurrent use of RIFAMPIN and ISONIAZID may result in hepatotoxicity.

Clinical Management:

Isoniazid and rifa

INTERACTION DETAIL

Clinical Management:

Isoniazid and rifampin are commonly used together for treatment of tuberculosis. Hepatic toxicity is possible with either agent and the risk may be increased when isoniazid and rifampin are used concomitantly. For patients on concurrent isoniazid and rifampin, monitor liver function tests, especially in children and in adults with predisposing risk factors. Monitor the patient for clinical symptoms of liver toxicity.

slow acetylator phenotyping for ison
increased amount of hydrazine (an i
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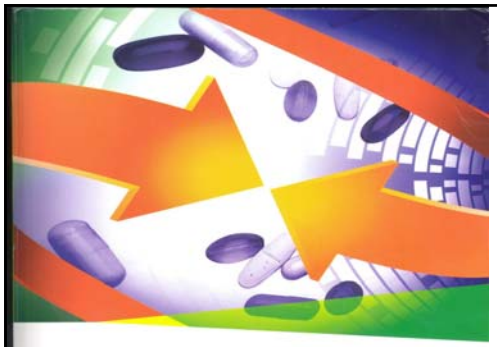
O'Brien RJ: Hepatoxic reaction to antituberculous drugs: adjustments to therapeut 1991; 265:3323.

Pessayre D, Bentata M, Degott C et al: Isoniazid-rifampin fulminant hepatitis. A pc consequence of the enhancement of isoniazid hepatotoxicity by enzyme induction. 1977; 72:284-289.

Raghupati Sarma G, Immanuel C, Kailasam S et al: Rifampin-induced release of h



David S. Tatro, PharmD

Drug Interaction Facts™

THE AUTHORITY ON DRUG INTERACTIONS

2009

Wolters Kluwer Health | Facts & Comparisons®

How To Use *Drug Interaction Facts*™

Significance Rating 1 2 3 4 5

A number 1 through 5 will be assigned to each interaction monograph, based on the Editorial Group's assessment of the interaction's Severity and Documentation (defined below).

1 is a severe and well-documented interaction.

5 is an interaction of no more than unlikely or possible documentation.

The formula for these number ratings is given in the following table:

Significance Rating	Severity	Documentation
1	Major	Suspected or >
2	Moderate	Suspected or >
3	Minor	Suspected or >
4	Major/Moderate	Possible
5	Minor	Possible
	Any	Unlikely

Onset

How rapidly the clinical effects of an interaction can occur determines the urgency with which preventive measures should be instituted to avoid the consequences of the interaction. Two levels of onset are used:

Rapid: The effect will be evident within 24 hours of administration of the interacting drug. *Immediate action is necessary to avoid the effects of the interaction.*

Delayed: The effect will not be evident until the interacting drug is administered for a period of days or weeks. *Immediate action is not required.*

Severity

The potential severity of the interaction is particularly important in assessing the risk vs benefit of therapeutic alternatives. With appropriate dosage adjustments or modification of the administration schedule, the negative effects of most interactions can be avoided. Three degrees of severity are defined:

Major: The effects are potentially life-threatening or capable of causing permanent damage.

Moderate: The effects may cause a deterioration in a patient's clinical status. Additional treatment, hospitalization, or an extended hospital stay may be necessary.

Minor: The effects are usually mild; consequences may be bothersome or unnoticeable but should not significantly affect the therapeutic outcome. Additional treatment is usually not required.

Documentation

Documentation determines the degree of confidence that an interaction can cause an altered clinical response. This scale represents the Editorial Group's evaluation of the quality and clinical relevance of the primary literature supporting the occurrence of an interaction. However, multiple factors can influence whether

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even a well-documented interaction occurs in a particular patient. The documentation does not address the incidence or frequency of the interaction; it is also independent of the potential severity of the effect of the interaction.

The following guidelines are used to establish the five Documentation levels:

Established: Proven to occur in well-controlled studies.

- An altered pharmacologic effect has been demonstrated in well-controlled human studies ... or ...
- A pharmacokinetic interaction has been demonstrated in well-controlled human studies. An altered pharmacologic response is expected based on the magnitude of the kinetic effect; clinical observations support the occurrence of the interaction.

Probable: Very likely but not proven clinically.

- A pharmacokinetic interaction has been demonstrated in well-controlled studies. Based on the magnitude of the kinetic changes and the known plasma level-response relationship of the affected drug, an altered pharmacologic response will probably occur ... or ...
- When controlled human experimentation is impractical, well-designed animal experiments confirm an interaction that is suggested by multiple case reports or uncontrolled studies.

Suspected: May occur; some good data; needs more study.

- A pharmacokinetic interaction has been demonstrated in well-controlled studies. Although an altered pharmacologic response might be expected to occur based on the magnitude of the kinetic changes, no firm conclusion can be drawn because a plasma level-response relationship has not been established for the affected drug ... or ...
- An altered pharmacologic response has been reported in multiple case reports or repeated uncontrolled clinical studies.

Possible: Could occur, but data are very limited.

- Although a pharmacokinetic interaction has been demonstrated, the kinetic changes are of such magnitude that it is not possible to predict if an altered response will occur ... or ...
- The evidence is divided as to whether an interaction exists ... or ...
- An altered pharmacologic response is suggested by limited data.

Unlikely: Doubtful; no good evidence of an altered clinical effect.

- A pharmacokinetic interaction has been demonstrated; however, based on the magnitude of kinetic change, a pharmacologic alteration is unlikely ... or ...
- The bulk of documentation is of poor quality or does not favor the existence of an interaction.
- In spite of reports of an interaction, well-controlled studies refute the existence of a clinically relevant interaction.

Drug interactions assigned Documentation levels of "Established," "Probable," or "Suspected" are considered to be reasonably well substantiated and have a significance rating of "1," "2," or "3." It is the opinion of the Editorial Group that these interactions have a reasonable probability of occurring.

Drug interactions assigned a Significance Rating of "4" or "5" have a Documentation level of "Possible" or "Unlikely" and are not substantiated. Because there is insufficient evidence supporting the existence of a clinically relevant interaction, prospective screening is probably not warranted. If an unanticipated effect occurs, the information in these monographs will be useful in reviewing what is known about these potential interactions.

Effects

Information concerning the pharmacologic effects of the interaction (eg, "the anticoagulant effects of oral anticoagulants are increased") and the clinical findings (eg, "possibly with bleeding") is included in this section. The interaction may lead to symptoms of drug toxicity or loss of therapeutic efficacy of one or both drugs. In some instances, the interacting combination will lead to effects that are unexpected based on the pharmacology of either drug.

The interactive potential of certain drug combinations may persist up to several days after one of the interacting drugs has been discontinued. Information concerning the duration of interactive potential is included in this section.

Mechanism

A brief description of the pharmacodynamic (eg, "decreased receptor sensitivity") or pharmacokinetic (eg, "decreased metabolism") mechanism by which an interacting drug affects the action of another drug is provided in this section.

Management

This section provides clinical management suggestions (eg, "may need a lower anticoagulant dose" or "give tetracycline at least 1 hour before antacids") so that the clinician can properly manage an interacting drug combination to prevent potential detrimental effects. Monitoring parameters are included when appropriate. Alternative therapy suggestions are provided when possible. Because of patient-, disease-, and drug related variables, it is frequently impossible to provide specific management recommendations. Modification or alteration of the therapeutic regimen must be based on the practitioner's clinical assessment of each individual situation.

Discussion

A brief review and assessment of the studies used to document the interaction are provided to promote a better understanding of the incidence and magnitude of the interaction (eg, "in a controlled study of 6 patients, 5 developed severe hemorrhagic complications").

References

The principal references documenting the interaction are listed at the end of each monograph following the discussion. With few exceptions, only primary reference sources are used.

Isoniazid — ***Rifampin***

Isoniazid* (eg, *Nydrazid*) — Rifampin* (eg, *Rifadin*)

Significance 1

Onset	Severity	Documentation
☐ Rapid	■ **Major**	☐ Established
■ **Delayed**	☐ Moderate	■ **Probable**
	☐ Minor	☐ Suspected
		☐ Possible
		☐ Unlikely

Effects Hepatotoxicity may occur at a rate higher than with either agent alone.

Mechanism Possibly an alteration in the metabolism of isoniazid caused by RIFAMPIN.

Management If alterations in liver function tests occur, consider discontinuation of one or both of these agents. Although discontinuation of therapy is usually sufficient, close monitoring is necessary due to the severity of the reaction.

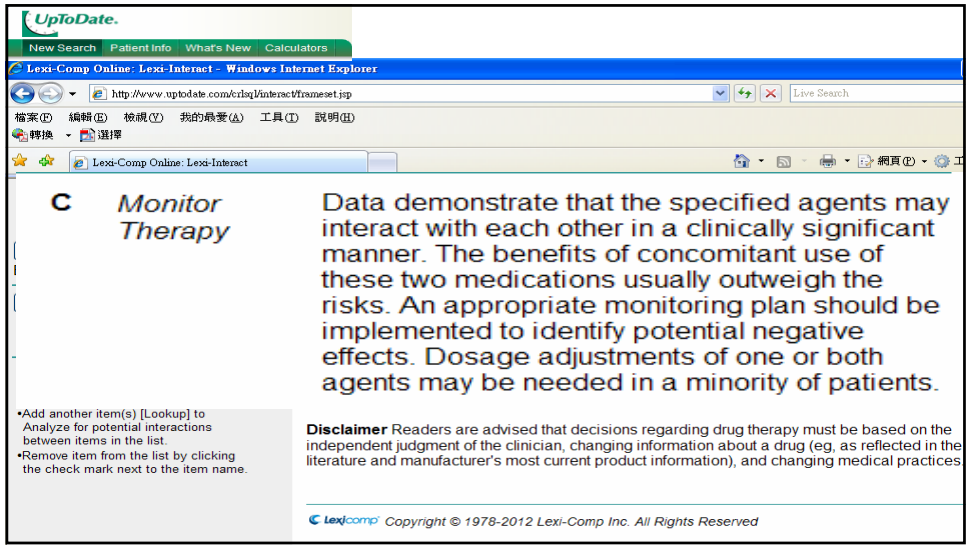
Discussion

In patients receiving both isoniazid and rifampin, an increased incidence of hepatotoxicity has been observed.[4,9] This reaction may be associated with an alteration in isoniazid metabolic pathways by rifampin. Rifampin appears to induce a secondary pathway of isoniazid metabolism,[7,10] while having little net effect on the primary pathway.[1,5,6,9,10] The secondary pathway produces hydrazine and isonicotinic acid directly from isoniazid.[7,10] Hydrazine is a proven hepatotoxin, mutagen and carcinogen in animals.[7,10] Hepatotoxicity has occurred more often in slow vs fast acetylators of isoniazid.[10] Hydrazine levels have been shown to be higher in slow acetylators.[7,10] Thus, it is possible that hydrazine contributes to the hepatotoxicity seen in this interaction. Pharmacokinetic parameters of isoniazid are relatively stable in the presence of rifampin.[1,5,6,10]

The frequency of hepatotoxicity with this combination in adults implies that the effects are additive rather than synergistic.[11] Children appear to be more susceptible to the interaction than adults.[11]

[1] Vesho VMK, et al. *Ann Clin Res* 1971;3:277.
[2] Acocella G, et al. *Gut* 1972;13:47.
[3] Boman G, et al. *Eur J Clin Pharmacol* 1974;7:217.
[4] Pessayre D, et al. *Gastroenterology* 1977;72:284.
[5] Llorens J, et al. *Chemotherapy* 1978;24:97.
[6] Raghupati Sarma G, et al. *Antimicrob Agents Chemother* 1980;18:661.
[7] Beever IW, et al. *Br J Clin Pharmacol* 1982;13:599p.
[8] O'Brien RJ, et al. *Pediatrics* 1983;72:491.
[9] Tinshell JA, et al. *Human Toxicol* 1985;4:279.
[10] Raghupati Sarma G, et al. *Am Rev Resp Dis* 1986;133:1072.
[11] Steele MA, et al. *Chest* 1991;99:465. Review.

* Asterisk indicates drugs cited in interaction reports.


UpToDate.
New Search | Patient Info | What's New | Calculators
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C Monitor Therapy
Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of these two medications usually outweigh the risks. An appropriate monitoring plan should be implemented to identify potential negative effects. Dosage adjustments of one or both agents may be needed in a minority of patients.
•Add another item(s) [Lookup] to Analyze for potential interactions between items in the list.
•Remove item from the list by clicking the check mark next to the item name.
Disclaimer Readers are advised that decisions regarding drug therapy must be based on the independent judgment of the clinician, changing information about a drug (eg, as reflected in the literature and manufacturer's most current product information), and changing medical practices
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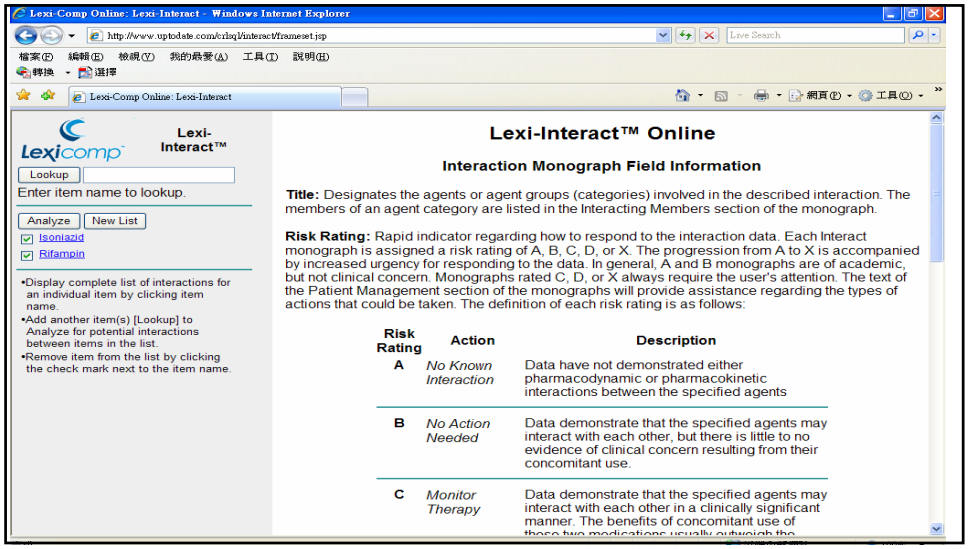
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Lookup
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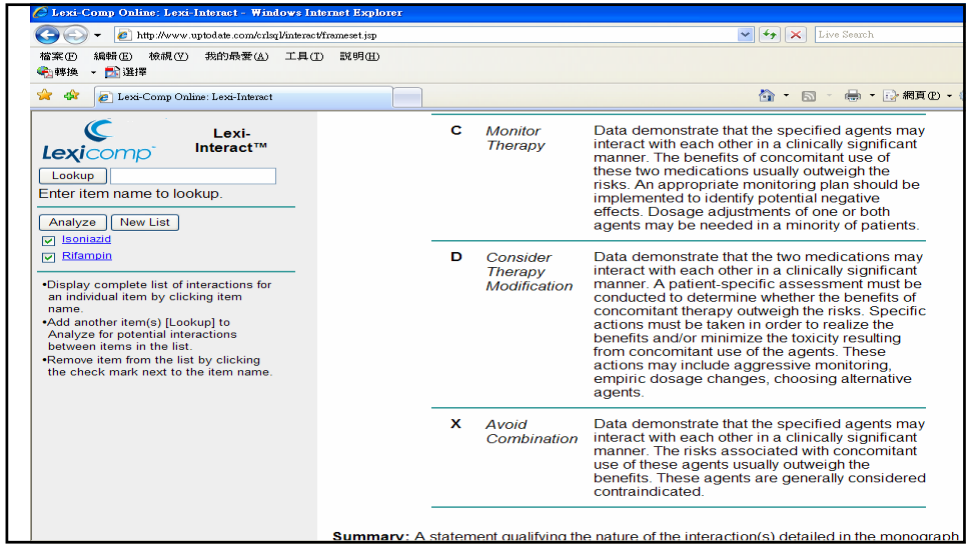
•Display complete list of interactions for an individual item by clicking item name.
•Add another item(s) [Lookup] to Analyze for potential interactions between items in the list.
•Remove item from the list by clicking the check mark next to the item name.
Lexi-Interact™ Online
Interaction Monograph Field Information
Title: Designates the agents or agent groups (categories) involved in the described interaction. The members of an agent category are listed in the Interacting Members section of the monograph.
Risk Rating: Rapid indicator regarding how to respond to the interaction data. Each Interact monograph is assigned a risk rating of A, B, C, D, or X. The progression from A to X is accompanied by increased urgency for responding to the data. In general, A and B monographs are of academic, but not clinical concern. Monographs rated C, D, or X always require the user's attention. The text of the Patient Management section of the monographs will provide assistance regarding the types of actions that could be taken. The definition of each risk rating is as follows:
Risk Rating | Action | Description
A | No Known Interaction | Data have not demonstrated either pharmacodynamic or pharmacokinetic interactions between the specified agents
B | No Action Needed | Data demonstrate that the specified agents may interact with each other, but there is little to no evidence of clinical concern resulting from their concomitant use.
C | Monitor Therapy | Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of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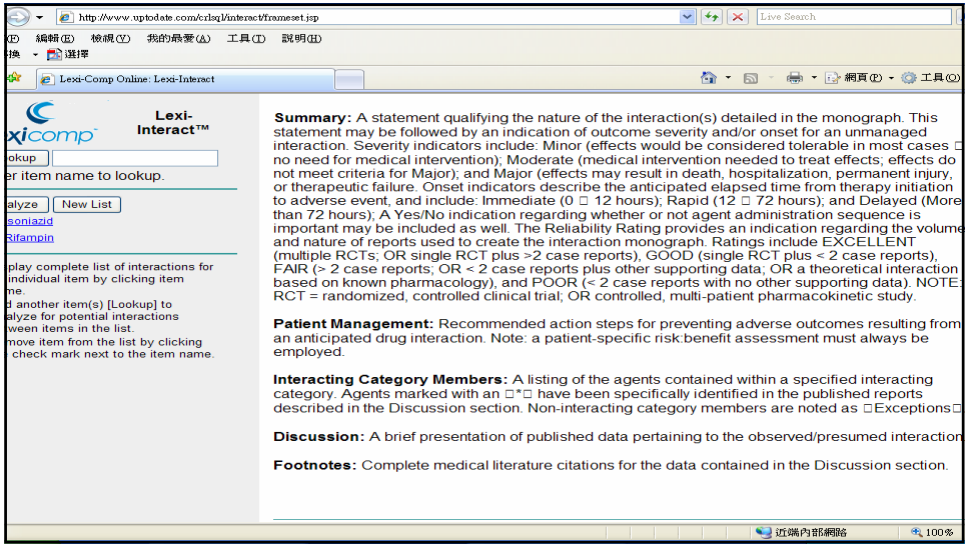
Lookup
Enter item name to lookup.
Analyze New List
Isoniazid
Rifampin
•Display complete list of interactions for an individual item by clicking item name.
•Add another item(s) [Lookup] to Analyze for potential interactions between items in the list.
•Remove item from the list by clicking the check mark next to the item name.
C Monitor Therapy
Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of these two medications usually outweigh the risks. An appropriate monitoring plan should be implemented to identify potential negative effects. Dosage adjustments of one or both agents may be needed in a minority of patients.
D Consider Therapy Modification
Data demonstrate that the two medications may interact with each other in a clinically significant manner. A patient-specific assessment must be conducted to determine whether the benefits of concomitant therapy outweigh the risks. Specific actions must be taken in order to realize the benefits and/or minimize the toxicity resulting from concomitant use of the agents. These actions may include aggressive monitoring, empiric dosage changes, choosing alternative agents.
X Avoid Combination
Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The risks associated with concomitant use of these agents usually outweigh the benefits. These agents are generally considered contraindicated.
Summary: A statement qualifying the nature of the interaction(s) detailed in the monograph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Summary: A statement qualifying the nature of the interaction(s) detailed in the monograph. This statement may be followed by an indication of outcome severity and/or onset for an unmanaged interaction. Severity indicators include: Minor (effects would be considered tolerable in most cases □ no need for medical intervention); Moderate (medical intervention needed to treat effects; effects do not meet criteria for Major); and Major (effects may result in death, hospitalization, permanent injury, or therapeutic failure. Onset indicators describe the anticipated elapsed time from therapy initiation to adverse event, and include: Immediate (0 □ 12 hours); Rapid (12 □ 72 hours); and Delayed (More than 72 hours); A Yes/No indication regarding whether or not agent administration sequence is important may be included as well. The Reliability Rating provides an indication regarding the volume and nature of reports used to create the interaction monograph. Ratings include EXCELLENT (multiple RCTs; OR single RCT plus >2 case reports), GOOD (single RCT plus < 2 case reports), FAIR (> 2 case reports; OR < 2 case reports plus other supporting data; OR a theoretical interaction based on known pharmacology), and POOR (< 2 case reports with no other supporting data). NOTE: RCT = randomized, controlled clinical trial; OR controlled, multi-patient pharmacokinetic study.
Patient Management: Recommended action steps for preventing adverse outcomes resulting from an anticipated drug interaction. Note: a patient-specific risk:benefit assessment must always be employed.
Interacting Category Members: A listing of the agents contained within a specified interacting category. Agents marked with an □*□ have been specifically identified in the published reports described in the Discussion section. Non-interacting category members are noted as □Exceptions□
Discussion: A brief presentation of published data pertaining to the observed/presumed interaction
Footnotes: Complete medical literature citations for the data contained in the Discussion section.

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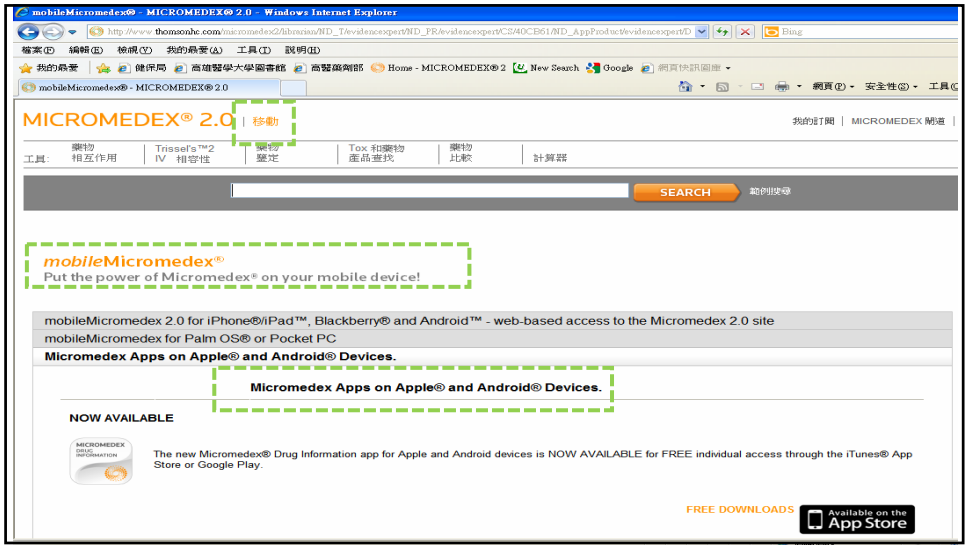

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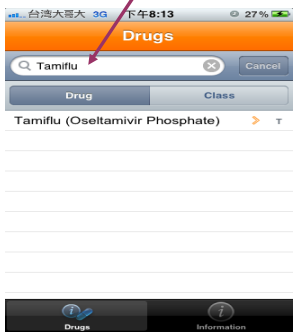
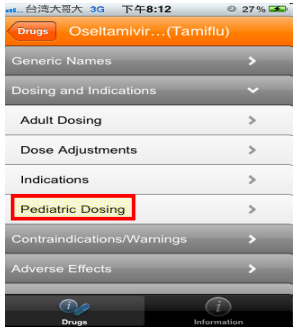
Apple IOS System

輸入：Tamiflu





資料庫選擇： MicroMedex in IOS

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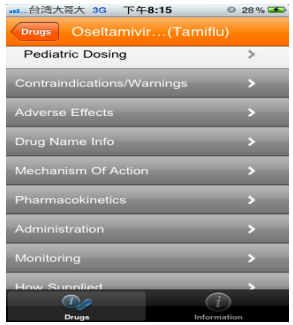

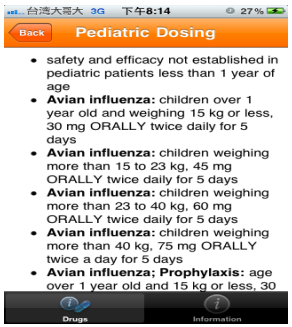

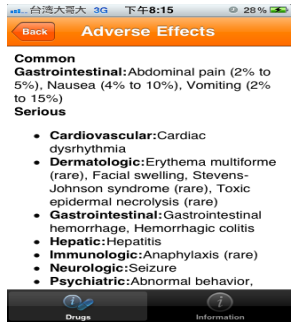

解決藥品諮詢問題的關鍵

- 辨識問題的種類
- 熟悉各資料庫的優勢與限制
- 練習、練習、再練習
  - 訓練自己成為金手指的不二法則

Take Home Message

- Practice makes perfect.
- Try, Try, and Try.....
- Never use only one resource or database to answer the question.

實證醫學只能給予資訊，而永遠不能夠取代個別的專業，因為是專業決定何時及如何採用這些實證。

David Sackett