

Herb (botanical name)	Interaction/Side effects (SE)
Agrimony	warfarin ↓ INR → herb may be a coagulant SE: photo dermatitis
Alfalfa (Medicago sativa)	cholesterol meds → herb may further ↓ lipid levels cyclosporin/steroids → ? herb immuno-stimulating hypoglycemic meds → herb may cause further hypoglycemia warfarin ↑↓ INR → herb may contain warfarin constituents or ↓ effect because of Vitamin K content in herb SE: May ↑K ⁺ , rare pancytopenia & worsening of lupus CI: Lupus
Aloe (Aloe vera)	digoxin & thiazide ↑ cardiac toxicity → due to electrolyte imbalance Not recommended with breastfeeding. SE: contact dermatitis, ↓K ⁺
Angelica	warfarin ↑ INR → herb may contain warfarin constituents Not recommended with breastfeeding. SE: photo dermatitis
Anise (Aniseed)	MAOI's → herb may ↑ risk of hypertensive crisis warfarin ↑ INR → herb may contain warfarin constituents
Aristolochia	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect SE: nephrotoxic
Arnica (Wolf bane)	warfarin ↑ INR → herb may contain warfarin constituents
Asafoetida	warfarin ↑ INR → herb may contain warfarin constituents- in vivo
Ayurvedic syrup	phenytoin → herb may ↓ phenytoin levels as well as ↓ efficacy SE: heavy metal poisoning from contamination
Betel nut (Areca catechu)	antipsychotics → herb may ↑ extrapyramidal SE (strong cholinergic effects); asthmatics → inadequate control of asthma
Black cohosh (Cimicifuga racemosa)	hormones → herb may have estrogen-like effect. Dose: 40-80mg/day. iron → herb contains tannic acids which may ↓ iron absorption warfarin ↑ INR → herb may contain salicylates SE: For menopausal symptoms → may cause mild GI effects & ↓ BP
Remifemin 20mg bid	
Bladderwrack (Fucus, Kelp)	warfarin ↑ INR → herb may have anticoagulant action levothyroxine → herb is a source of iodine → caused hyperthyroidism
Bogbean	warfarin ↑ INR → herb may have hemolytic activity
Borage	antipsychotics/anticonvulsants/TCA's → herb may ↑ seizures amiodarone, steroids ^{anabolic} , ketoconazole, methotrexate → herb may ↑ hepatotoxicity effect. Generally unsafe . Not help atopic dermatitis Takwale 2003
Broom	Antihypertensive meds → herb may ↑ BP by itself
Calamus	Sedatives → herb may potentiate sedation. Generally unsafe
Capsicum (Chili peppers)	MAOI's → herb ↑ risk of hypertensive crisis SE: dermatitis, GI upset. ACE inhibitor → may ↑ cough ; theophylline → may ↑ absorption
Cascara (Rhamnus purshiana)	Various meds → ↓ absorption since going quicker via GI system Digoxin/thiazides/steroids → herb may potentiate hypokalemia
Cassia	warfarin ↑ INR → herb may inhibit platelet aggregation
Celery (seed/extract)	warfarin ↑ INR → herb may contain warfarin constituents sedatives → herb may potentiate sedation. Herb → ? diuretic action.
Cereus	MAOI's/SSRI's/TCA's → herb may ↑ risk of serotonin syndrome
Chamomile (Matricaria reutila) (German/Roman)	warfarin ↑ INR → herb may contain warfarin constituents iron → herb contains tannic acids which may ↓ iron absorption sedatives → herb may potentiate sedation; allergic reactions
Chaparral (Larrea tridentata)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Generally unsafe
Chinese herb mixture	Rare: heavy metal contamination . Not help Hepatitis C Jakkula 04
Chondroitin 1200mg/day	warfarin ↑ INR → herb may increase bleeding & chondroitin sulfate is a component of the antithrombotic danaparoid SE: GI. Poor oral absorption ~<10%, IM form in other countries.
Chromium picolinate	nephrotoxic drugs → herb may ↑ renal failure & rhabdomyolysis hypoglycemics → herb may cause hypoglycemia
Clove	warfarin ↑ INR → herb contains eugenol - a platelet inhibitor
Coltsfoot (Tussilago farfar)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Not rec. with breastfeeding
Comfrey (Symphytum species)	herb may have additive or as monotherapy a hepatotoxic effect (Health Canada warning Dec 2003). Generally unsafe (FDA 2001).
Co-enzyme Q10 (Ubiquinone)	betablockers, phenothiazines, TCA's, doxorubicin → herb may ↓ cardiac side effects from these medications cardiac & antihypertensives → may improve effect of cardiac meds HMG-Co A & hypoglycemics → may ↓ natural levels of Q10 in body warfarin ↓ INR → herb may decrease effect of warfarin
Couchgrass	diuretics → herb may ↑ potassium loss; lithium → herb may alter level. sedatives → herb may potentiate sedation
Dandelion	diuretics & lithium → herb may ↑ diuretic effect & ↑ lithium toxicity warfarin ↓ INR → ↓ effect due to Vitamin K content in the herb; ↑K ⁺
Danshen	warfarin ↑ INR → clinical bleed due to ? acetylsalvanilic acid
Dehydroepian-drosterone-DHEA	warfarin ↑ INR → herb may have fibrinolytic potential. triazolam level can ↑ due to DHEA. Banned by the NBA.
Devil's Claw (Harpagophytum procumbens)	heart & blood pressure meds → herb may interfere (↑↓) with BP hypoglycemics → herb may cause hypo/hyperglycemia warfarin → ? purpura SE: headache, ringing ears, ↓ appetite, ↓ taste
Dong Quai (Angelica sinensis)	heart meds → herb has quinidine like activity warfarin ↑ INR → herb ? contain warfarin constituent. Case reports Not recommended with breastfeeding. SE: photosensitive

Echinacea (P)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity if used for > 8 weeks
Purple coneflower	corticosteroids/cyclosporin → avoid combination glycemic control → herb may cause hypo/hyperglycemia warfarin ↑ INR → herb in vitro ? ↑ warfarin metabolism SE: Often used for 2 weeks for an acute infection but can cause rash, allergic reaction, tiredness, somnolence, dizziness, headache & GI upset. CI: HIV, TB, transplant pts, RA, MS, lupus → herb immunostimulant
Not ↓ kids resp. infection - Taylor JAMA 2003	
Elecampane	sedatives → herb may potentiate sedation
Ephedra (Ma huang) (P)	anticonvulsants → herb may cause seizures caffeine, decongestants, stimulants → herb may ↑ nervousness & tremor
Herbal Ecstasy	heart & blood pressure meds → herb may ↑ heart rate & BP
Ephedrine/ Pseudoephedrine (Ban in olympics)	hypoglycemics → herb may cause hypo/hyperglycemia SE: Used in many weight loss or energy products but over 800 reports of nervousness, insomnia, irritability, psychosis, headache, dizziness, seizures, stroke , premature ventricular contraction, hypertension, myocardial infarction & death . FDA ban Apr/04 . FDA maximum: 8mg/dose & 24mg/day for no more than a week. Not recommended with breastfeeding. NOT considered SAFE
Tea-15-30mg ephedrine/cup.	
Evening Primrose oil (Oenothera biennis)	anesthetics/antipsychotics/anticonvulsants → herb ↑ seizures SE: For menopause but can cause nausea, headache & soft stools
Fenugreek	warfarin ↑ INR → herb may contain warfarin constituents
Feverfew Tanacet 125mg od (Tanacetum parthenium)	iron → herb contains tannic acids which may ↓ iron absorption NSAIDS/STEROIDS → may ↓ the therapeutic effect of feverfew warfarin ↑ INR → herb in vitro ? inhibit binding of platelets Recommend 0.2% but most products contain <0.1% parthenolide SE: Often used for migraine headaches but can cause gastric discomfort, oral ulcers, lip & tongue swelling & rebound headache when herb stopped. Not recommended with breastfeeding.
only 6 of 30 lots had labeled content CPJ Draves 2003/2004	
Flaxseed	warfarin ↑ INR → herb may ↑ bleeding time (Linum usitatissimum)
Garlic (Allium sativum) (P)	antihypertensive meds → this herb may ↓ BP thus caution advised aspirin/warfarin ↑ INR → ajoene, a product of allin breakdown is believed to be responsible for reversible inhibition of platelet aggregation- clinical bleeding has occurred (Case reports) hypoglycemics → herb may cause hypoglycemia; saquinavir → ↓ level SE: Often used for hypertension & high cholesterol but can cause burning sensation, nausea, heartburn, menorrhagia, diaphoresis, lightheadedness, odoriferous skin & breath & contact dermatitis.
Active agents: allicin & ajoene Need high doses to work. Only short 3hr half life & acid labile → enteric coated better	
Germander (Teucrium chamaedrys)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect Generally considered unsafe- 30 cases of acute liver failure .
Ginger (Zingiber officinale)	heart & antihypertensives → herb may ↑ or ↓ effect with these meds hypoglycemics → herb may cause hypoglycemia warfarin ↑ INR → herb may inhibit platelet aggregation (in vitro) SE: An antiemetic ^{Portnoi 2003} but cause heart burn & allergic reactions.
Ginkgo biloba (Maidenhair Tree) (P)	acetaminophen & ergotamine/caffeine → subarachnoid hemorrhage & subdural hematoma anticonvulsant/TCA/trazodone → may ↓ seizure threshold → ↑ seizures aspirin/clopidogrel/dipyridamole/ticlopidine/warfarin ↑ INR → ginkgolide B may inhibit platelet activating factor by displacement from its receptor binding sites (Case reports) thiazides → with herb may lead to hypertension (1 case) SE: Often used to help circulation & cognition but may cause headache, dizziness, restlessness, nausea, vomiting, diarrhea & dermal sensitivity .
~40mg po tid ac	
Ginseng, Eleuthero or Siberian (Eleutherococcus senticosus)	digoxin → herb may ↑ digoxin serum level (? Maybe assay interference with level or from contaminated P. sepium) heart & blood pressure meds → herb may change BP/↑ heart rate warfarin ↑ INR → herb ? ↓ platelet aggregation & contain coumarin Not recommended with breastfeeding. May ↑K ⁺
Ginseng, American (Panax quinquefolius) (P)	alcohol → may ↑ alcohol clearance from the body corticosteroids → herb may affect steroid concentrations heart & blood pressure meds → herb has negative chronotropic & inotropic activity, as well as possible ↓ blood pressure estrogens/corticosteroids → herb may have possible additive effects (reported mastalgia & postmenopausal bleeding) furosemide → case report of diminishing furosemide effect hypoglycemics → herb may have additive hypoglycemic effect MAOI's → may inhibit reuptake of various neurotransmitters & ↑ tremor/ mania thus contraindicated mood stabilizers → herb may induce mania oral contraceptives → herb may interfere in effectiveness of sex hormone treatment sedatives → herb may potentiate/antagonize sedative side effects warfarin ↑↓ INR → herb may cause ↑ bleeding by itself or ↓ INR (Case reports , Yuan 2004)
Korean/Asian (Panax ginseng)	SE: in general for ALL species: nervousness, excitation, diarrhea, insomnia, inability to concentrate, headache, hypertension, epistaxis, allergies & skin eruptions. Not recommended with breastfeeding
Only 25% of ginseng products actually contained ginseng in a recent study, plus 85% did not contain ginseng in a 1990 survey.	
Glucosamine ~500mg po tid	Hypoglycemics/insulin → does not ↑ HgA1C ^{Scroggale 2003} , may cause insulin resistance & ? ↑ resistance to doxorubicin & etoposide. Well absorbed ~90%, IV elsewhere. Some efficacy ^{Richy 2003} . Shellfish allergy. SE: For osteoarthritis but may cause GI side effects such as diarrhea.

Goldenseal (Hydrastis canadensis)	heart & antihypertensives→herb can alter heart & blood pressure heparin → herb can oppose the action of heparin sedatives→ herb may ↑ sedation. Expensive & often adulterated.
Gotu kola	sedatives→ herb may ↑ sedation statins → herb may ↑ lipids
Green tea ?↓hypertension Yang 04	iron→ herb contains tannic acids which may ↓ iron absorption warfarin ↓ INR → herb may contain ↑ vitamin K content (in vitro). Contains 10-80mg caffeine cup. Lithium level ↑ if stop caffeine.
Guar gum (Cyamopsis tetragonolobus)	digoxin & penicillin V→slows absorption in the stomach glyburide,iron & metformin → ↓ absorption with some formulations SE: rare gastric obstruction. May ↓ cholesterol levels.
Hawthorn (Crataegus monogyna)	digoxin & antihypertensives → herb may interfere with these meds MAOI's: may contain tyramine → ↑ risk of hypertensive crisis. ↑K ⁺
Hops	sedatives → herbs may ↑ sedation; herb has estrogen like chemicals
Horse chestnut	aspirin & warfarin ↑ INR → herb may contain warfarin constituents SE: irritant to stomach & hypoglycemia (<i>Aesculus hippocastanum</i>)
Horseradish	warfarin ↑ INR →peroxidase stimulates arachidonic acid metabolites
Indian snakeroot	antihypertensives & digoxin→ herb can ↑ effect antidepressants→ herb can ↓ effect (reserpine found in herb)
Jamaican Dogwood	sedatives→ herb may potentiate sedative SE
Karela (Bitter melon)	hypoglycemics → herb may affect blood glucose levels
Kava kava (P) (Piper methysticum)	alcohol/antipsychotics/sedatives→ herb may ↑ sedation alprazolam /benzodiazepines→ has led to additive depression (Case report of ↑ lethargy/?coma with alprazolam) antiparkinsonian meds→herb may exacerbate Parkinson's-case report SE: Often used for anxiolytic but causes headache,dizziness,GI discomfort & local numbness after oral ingestion; dry scaly skin & discoloration (yellow) , leukopenia, thrombocytopenia , photosensitivity & eye redness with long term use or high dosages. Reports of hepatotoxicity FDA Mar'02. Not recomm. with breastfeeding
Stop-sale order in Canada after Aug/02	
-a social drink in South Pacific	
Kelp	levothyroxine→herb source of iodine→caused hyperthyroidism
Kombucha	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect.Source of anthrax outbreak.
Kyushin	digoxin→herb may interfere with dynamics/monitoring
Life root (Senecio aureus)	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect. Generally unsafe
Licorice (Glycyrrhiza glabra)	antihypertensives/digoxin/loop diuretics/spironolactone/thiazides → herb may cause hypokalemia , plus sodium & fluid retention which can ↑ blood pressure (ie. Pseudoaldosteronism) corticosteroids→herb may ↑ oral & topical steroid effects digoxin→herb may interfere with pharmacodynamically/monitoring hypoglycemics → herb may cause ↓ glucose tolerance thus caution oral contraceptive→ may lead to hypertension,edema & ↓ potassium warfarin ↑ INR → herb may inhibit platelet activity SE: lethargy, headache & electrolyte imbalances. Not recommended with breastfeeding. Generally unsafe
High dose is >50 grams/day	
Most licorice in the USA contains anise oil rather than licorice.	
Meadowsweet	warfarin ↑ INR → herb may contain salicylate constituents
Melilot (Sweet clover)	warfarin ↑ INR → herb may contain warfarin constituents
Milk thistle (Silybum marianum)	hypoglycemics → herb may have additive hypoglycemic effect SE: Gastric pain, diarrhea, vomiting & allergic reactions. In Europe available IV to "detoxify the liver".Oral ~25% absorbed.
Mistletoe	warfarin ↓ INR → herb may contain lectins → ↓ agglutination
Nettle	iron→ herb contains tannic acids which may ↓ iron absorption sedatives→ herb may potentiate sedation warfarin ↓ INR → herb may contain Vitamin K; May ↑K ⁺
Papain/Papaya	warfarin ↑ INR → may ↑ INR (Carica papaya) SE: gastritis
Parsley	antihypertensives→ herb has sympathomimetics→watch for ↑ BP MAOI's→ herb ↑ risk of hypertensive crisis.Herb may contain Vit K
Passionflower	MAOI's/SSRI's/TCA's→herb may ↑ risk of serotonin syndrome sedative →herb ↑ sedation;warfarin ↑ INR →may contain coumarins
Pennyroyal (Mentha pulegium)	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect (? Treat → acetylcysteine)
Plantain (Black psyllium)	carbamazepine/digoxin/iron/lithium/warfarin→ ↓ absorption by herb digoxin→herb may interfere with absorption/dynamics/monitoring
Plurisy root	MAOI's→ herb ↑ risk of hypertensive crisis
Poplar	warfarin ↑ INR → herb may contain salicylate constituents
Prickly Ash	warfarin ↑ INR → herb may contain warfarin constituents
Psyllium(P.ovata)	carbamazepine/digoxin/iron/lithium/warfarin→ herb ↓ absorption
Quassia	warfarin ↑ INR → herb may contain warfarin constituents
Red Clover (Promensil)	oral contraceptive→ herb may ↓ effect. Made cheetah's sterile. warfarin ↑ INR → herb may contain warfarin. SE: rash
Royal jelly	asthma medications→ herb may cause bronchospasm Expensive source of "B" vitamins. Food for queen bee.

Web links: //vm.cfsan.fda.gov/~dms/supplmnt.html //nccam.nih.gov
 www.ars-grin.gov/duke www.quackwatch.com www.ncahf.org
 www.herbmed.org www.consumerlab.com www.drugfacts.com
 www.naturaldatabase.com www.msckcc.org/aboutherbs
 www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/index_e.html www.herbs.org
 http://www.cfsan.fda.gov/~dms/supplmnt.html

Sage	sedatives→ herb may potentiate sedation
Saiboku-to Asian herb mixture	corticosteroids→herb may ↑ prednisolone levels Same herbs→ sho-saiko-to ,Poria cocos,Mangolia officinalis&Perillae frutescens
Sassafras	SE: sedation. Generally considered unsafe (S. albidum)
Sauropus androgynus	amiodarone, anabolic steroids, ketoconazole & methotrexate→ herb may potentiate hepatotoxicity
Saw palmetto (Serenoa repens)	estrogen/contraceptives/hormones → herb may have anti-androgen & estrogenic activity iron→ herb contains tannic acids which can ↓ iron absorption
Sabal fruit	SE: Often used for benign prostatic hyperplasia but causes headache , GI discomfort(nausea, abd pain, constipation & diarrhea) & rare hormonal actions (breast tenderness, loss of libido & venous thrombosis). Efficacy: ≤ Proscar but likely < than ≈1 blockers
May cause false negative PSA test	
Scullcap	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect (? due to adulterants) sedatives → herb may potentiate sedation
Senna (Cassia senna)	digoxin/thiazides/steroids→ herb may potentiate hypokalemia various meds→ ↓ absorption→going quicker via GI system
Shankapulshpi	phenytoin→herb may ↓ phenytoin levels as well as ↓ efficacy (Ayurvedic mixed herb syrup)
Shepherd's Purse	MAOI's→ may contain tyramine thus ↑ risk of hypertensive crisis sedatives→ herb may potentiate sedation
Sho-saiko-to	prednisolone→↓ levels for prednisolone (Asian herb mixture)
St. John's (P)	antihypertensive meds→ this herb may ↑ BP thus caution advised barbiturates→ herb may ↓ barbiturate induced sleeping time
Wort (Hypericum perforatum)	cyclosporin/digoxin/fexofenadine/imatinib/indinavir/irinotecan/midazolam/ nevirapine/omeprazole/oral contraceptives/ sumatriptan/theophylline/warfarin →herb may ↓ levels of these drugs via ↑ metabolism (P450 3A4 inducer) iron→ herb contains tannic acids which can ↓ iron absorption MAOI's/SSRI's/TCA's→herb may ↑ risk of serotonin syndrome (6 case reports-tremor, delirium...) by ↑ serotonin levels plus since MAOI action → restriction tyramine food is wise. narcotics → may prolong narcotic induced sleeping time piroxicam/tetracyclines→ can ↑ photosensitize reaction sedatives→ herb may potentiate sedation SE: Often for mild to moderate depression but may cause allergic reactions, headache, dizziness, restless, fatigue, dry mouth, mania, nausea, vomiting, constipation,dreams, hair loss & photosensitivity & possible uterotonic activity . Possible cataract link thus rec to wear wrap around sunglasses. Hold for 2 weeks before any surgery.
~300mg po tid	
-not for major depression JAMA APR 01 & 02	
Active agents:	
0.3% hypericin & hyperforin	
(Used commonly -esp. in Germany)	
Only 2/54 products	
contained within 10% of the labeled amount. C.J.C Pharmacol 2003	
Tamarind	aspirin→ ↑ bioavailability of aspirin (Tamarindus indica)
Tonka Bean	warfarin ↑ INR → herb may contain warfarin constituents
Umbelliferae	warfarin ↑ INR → herb may contain dicumoral constituents
Uzara root	digoxin →herb may have additive effects or interfere with monitoring
Valerian (P) (Valeriana officinalis)	sedatives→ herb may potentiate sedation Possible acute hepatitis reported (? Due to adulterants). SE: Often used for sedative & anxiolytic action but may cause headache, excitability, ataxia & gastric complaints. (Case report of withdrawal syndrome involving cardiac abnormalities & delirium)
Verbena(Vervain)	MAOI's→ herb ↑ risk of hypertensive crisis
Vitamin E	warfarin ↑ INR → herb may ↓ platelet aggregation.In sunflower seeds .
Wild Carrot	sedatives→ herb may potentiate sedation
Wild Lettuce	sedatives→ herb may potentiate sedation
Willow/Wintergreen	warfarin ↑ INR → herb may contain salicylate constituents
Woodruff	warfarin ↑ INR → herb may contain warfarin constituents
Yarrow	warfarin ↓ INR → herb may be a coagulant in vivo
Yohimbe (Pausinystalia yohimbe)	clonidine & antihypertensives→herb may ↑ BP since is α 2 blocker TCA antidepressants →herb may ↑ risk of hypertension SE: nervousness, tremor, headache, dizzy, flushing & nausea
Xaio chai hu tang	corticosteroids→herb may ↓ blood level of prednisolone

Unsafe Herb list: (American Journal Health System Pharmacy, Jan 15/1999) borage, calamus, chapparal, coltsfoot, comfrey, ephedra, gerrmander, licorice, life root, sassafras, star anise

Potentially safe herb but still interactions: (American Journal Health System Pharmacy, Jan 15/1999) feverfew, garlic, ginkgo, ginseng-Asian, saw palmetto, St. John's wort, valerian

Frequently Allergic reactions with: (American Journal of Medicine, Feb 1998)
 Agnus Castus, Angelica, Aniseed, Apricot, Arnica, Artichoke, Asafoetida, Boneset, Cassia, Celery, Cinnamon, Cowslip, Dandelion, Elecampane, Euphobia, Feverfew, Fucus, Gravel Root, Gaucium, Holy Thistle, Hops, Hydrangea, Juniper, Lady's Slipper, Meadowsweet, Motherwort, Parsley, Pilewort, Plantain, Pulsatilla, Rosemary, Royal Jelly, Tansy, Wild Carrot, Yarrow

Natural medicine does **NOT** guarantee SAFETY. **1/4 of all modern drugs** have a natural/botanical origin. Medicinal herbs are drugs with potential harm & benefit! Concerns regarding **purity, potency & quality** are especially important in the herbal industry. A sample of 2609 sample of traditional Chinese medicines collected from 8 hospitals in Taiwan, 23.7% contained pharmaceutical **adulterants**, most commonly **acetaminophen, caffeine, hydrochlorothiazide, indomethacin & prednisolone**.^{5,7} Other NSAIDs & benzodiazepines found in Chinese patent medicines sold outside Asia⁶. In 24 of 251 Asian patent medicines there was **lead**; 36 **arsenic** & 35 contained **mercury**.⁹ Like all drugs there are some **serious side effects & interactions** that occur.

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BP-Blood pressure **CI**-Contraindication **GI**-Gastrointestinal **K**-potassium **INR**-international normalization ratio (ie. bleeding risk)

(P)-a concern if given pre-op (JAMA July 11/2001) **SE**-side effect

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