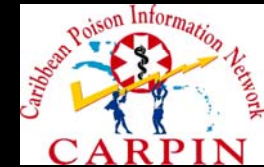


CARIBBEAN POISON INFORMATION NETWORK



**THE THIRD ANNUAL SCIENTIFIC
CONFERENCE UHWI KINGSTON,
JAMAICA MAY 31- JUNE 1,2008.**

DRUG-HERB- NUTRIENT INTERACTIONS

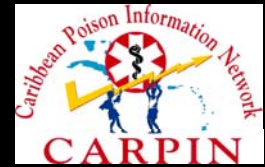


DR DOROTHEA DAYLEY

B.Sc. , M.Sc. ,MB. BS.

CARPIN 3RD SCIENTIFIC CONFERENCE

JUNE 1, 2008



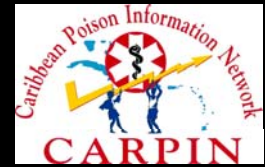
Interaction Categories

- Depletion or Interference
- Adverse Reactions
- Side Effect Reduction / Prevention
- Supportive Interactions
- Reduced Drug Absorption /Bioavailability



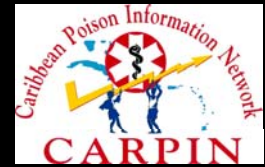
Depletion or Interference

- Indicates where the drug may deplete or interfere with absorption or function of the supplement or herb



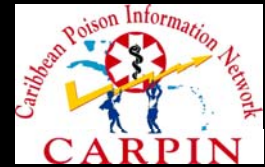
Adverse reactions

- Indicate that the supplement or herb used together with the drug may result in undesirable effects



Side Effect Reduction / Prevention

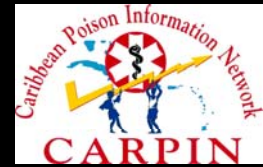
- Indicates the supplement or herb may reduce the likelihood and / or severity of potential side effect caused by the drug



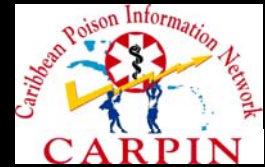
Supportive Interactions

- Indicates the supplement or herb may aid the function of the drug

Reduced Drug Absorption / Bioavailability



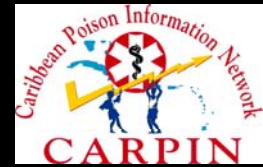
- Indicates that the Herb or Supplement may decrease the absorption and / or activity of the Drug in the body



ANTACIDS

- Alum. Hydroxide (Ca and Mg preferred)
- deplete folic acid and possibly copper and phosphate. If using these long term then supplement with multi minerals and multivitamins

ANTACIDS



- ~~Proton Pump Inhibitors~~ eg Omeprazole or Lansoprazole
- decrease absorption of Vit B-12 and Betacarotenes from food sources not from Supplements
- PPI taken with cranberry juice or other acidic liquids increased the uptake of Vit B-12 from food sources

ANALGESICS

- ASA & NSAIDS
- ▼ folic acid levels
- ▲ risk of GI bleeding leading to decr Iron stores leading to anaemia
- ▼ Vit-C levels
- Vit-E + Asa or Nsaids ▲ likelihood of bleeding



ANALGESICS

- Cayenne (capasaicin) may protect against stomach damage by ASA
- Licorice (deglycyrrhizinated licorice) is protective of stomach and intestines from damage caused by ASA and Naproxen

ANALGESICS

- ACTOMINOPHEN AND COMBINATIONS
- Acetaminophen overdose can cause liver damage N-Acetyl- cysteine iv /oral can be used to treat this.
- Vit-C >3 grams can prolong time in body
- Pretreatment with standardised Milk Thistle Extract-Silymarin or Schisandra extract can prevent liver damage



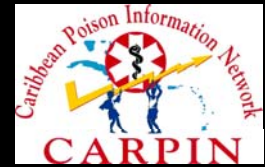
ANALGESICS

- **FOODS** high in pectin, high carbohydrate and large amounts of Cruciferous veg can interfere with acetaminophen absorption
- **ALCOHOL** consumption can potentiate acetaminophen induced liver damage



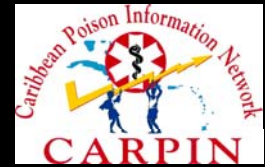
CHOLESTEROL LOWERING DRUGS HMG-CoA reductase inhibitors

- **STATINS** in randomised double-blind trials were shown to significantly reduce the levels of CoQ 10 over 18 weeks hence should recomm. At least 100mg supplement
- **ANTACIDS** containing Mg and Al decr levels of Statins by blocking absorption so separate ingestion by 2 hours.



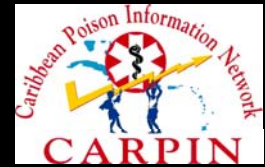
STATINS

- Niacin (Vit-B3) together reduce Chol. Levels more effectively than each used alone but can cause increase liver problems and muscle disorders so blood levels must be monitored.
- Vit – A levels can be increased with long term use over a 2-year period so monitor Vit-A levels



ANTI - HYPERTENSIVES

- **PROPRANOLOL**
- Coenzyme Q10 suppl. Can overcome the inhibition of enzymes dependent on CoQ10.
- Black Pepper extract can increase the blood levels of the drug
- FOOD increases drug absorption so ADVISE clients to take their meds. at the same time every day always with or always without food

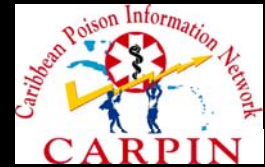


ANTI-HYPERTENSIVES

- Alcohol can potentiate the drowsiness and dizziness caused by Propranolol
- Tobacco double blinded studies showed that in patients treated with propranolol their angina episodes incr. in the Smoking Phase cf. Non Smoking Phase

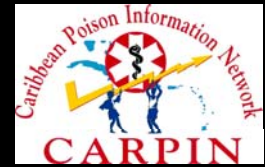
ANTI-HYPERTENSIVES

- THIAZIDE DIURETICS
- ▼ CALCIUM loss in urine
- Depleted Mg. , K, Zn and Vit –D (due to loss of K can get an incr. in arrhythmias with Digoxin use
- ▲ SODIUM loss in urine (with low sodium diet can reduce the amount of Diuretic given.



ANTI-HYPERTENSIVES

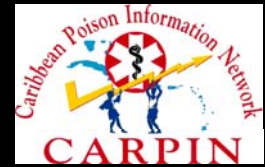
- DIURETIC HERBS like Uva Ursi, Dandelion, Juniper, Buchu, Cleavers, Horsetail, Gravel Root can incr the diuretic drugs
- Licorice can increase the effects of potassium depleting diuretics whereas DGL can be used safely with any diuretic



ANTI-HYPERTENSIVES

■ ACE INHIBITORS

- eg Captopril and Enalapril can lead to increased K levels –avoid suppl.
- Zn is lost in the urine so use multi minerals and vits



ANTICOAGULANTS

- HEPARIN
- may cause hyperkalemia
- Interferes vit-D activation (theoretically could cause Osteoporosis with long term use)
- Digitalis or Digoxin can reduce the efficacy of Heparin and theoretically Ginger could lead to increased bleeding

ANTICOAGULANTS

- Herbs containing Coumarin derivatives e.g. Dong Quai, Fenugreek, Horse chestnut, or Red Clover could theoretically cause bleeding (care needs to be taken)

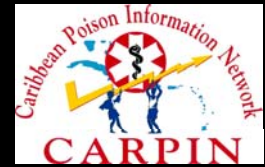
- **WARFARIN / COUMARIN**

Bromelain, Vit-C, Vit-D, Vit-E all could theor.

▲ action of the anticoag this has not been confirmed by research or in clinical practice

ANTICOAGULANTS

- Coenzyme Q10 because of its similarity to Vit-K can decr. the efficacy of Warfarin
- Iron, Mg and Zn may bind with Wafarin and ▼ it effect (Advise to be taken At least 2 hours apart)
- Vit-K supplements and large quantities of green leafy vegetables can ▼ efficiacy of Warfarin



ANTICOAGULANTS

HERBS like Asian Ginseng, Dan Shen, Devil's Claw, Garlic ginger, Coumarin derivatives, Quinine are all said to incr. tendency to bleed.

FOODS like green leafy veg. ▼ efficacy and papaya enzyme can incr tendency to bleed.

ALCOHOL esp. heavy usage ▼. Efficacy

ANTIBIOTICS

- PROBIOTICS eg *Acidophilus* sp. And *Bifidobacteria* can restore gut flora preventing Diarrhoea and decreased absorption of nutrients
- *Saccharomyces boulardii* harmless Yeast in a double blinded study was shown to prevent pseudomembranous colitis induced by Vancomycin

ANTIBIOTICS

- Vit-C has been shown to incr. absorption of Tetracycline in a study and to increase the efficacy of Trimethoprim- Sulfamethoxazole in cystic fibrosis
- Vit-K production is ▼. Because K producing bacteria are killed. Vit- K1 production returns in a few weeks.

DIABETIC DRUGS

- SULPHONYLUREAS eg Glipizide and Glyburide
- Glipizide can cause incr. Magnesium Levels and ▲ Mg levels can cause incr. Glyburide levels therefore (therapeutic or detrimental)



DIABETIC DRUGS

HERBS like Fenugreek, Gymnema and Aloe Vera can decr. Blood Sugar levels and improve control. Fenugreek works in both Type 1 and Type 2 .

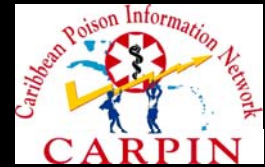
Dosage reductions must be made if these are being taken with meds to avoid Hypoglycemia

DIABETIC DRUGS

Glipizide works best when taken 30 mins.
Before meals and Glyburide may be taken
with food to avoid GI upsets

METFORMIN

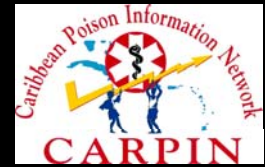
- ▼ Serum Vit-B12 levels but not folate
(suggest suppl. With B12)
- ▼ Mg loss from kidneys ? Clinical signif.



DIABETIC DRUGS

FOOD interferes with Metformin absorption
would be best on an empty stomach but
due to the incidents of GI side effects we
often advise it with food

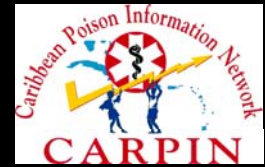
ALCOHOL can potentiate the Lactic Acidosis
that can occur



CHEMOTHERAPY

NAUSEA can be controlled by anti nausea drugs or using Herbs and Food Suppl.

One trial suggests that N-Acetyl Cysteine 1800mg daily may reduce chemo induced nausea. Ginger can also be helpful in reducing nausea and vomiting

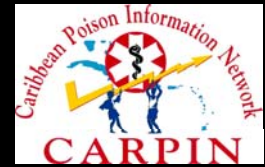


CHEMOTHERAPY

MUCOSITIS (MOUTH SORES)

A Trial giving large doses of Betacarotene 400,000 IU in divided doses for 3 weeks then 125,000 daily for another 4 weeks delayed the development of mouth sores and their severity cf Chemo alone

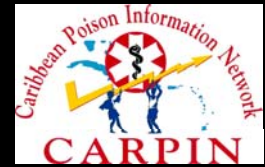
Topical Vit-E applied directly to sores speeded up their resolution cf Placebo



CHEMOTHERAPY

FOOD AVERSIONS

can use a scapegoat stimulus to direct aversion to the scapegoat. One trial showed that fruit drinks protected better against development of aversions of other foods



CHEMOTHERAPY

VITAMIN A

Controlled French Trial showed that high dose
350,000-500,000 IU + Chemo ▲

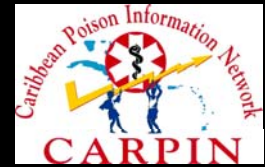
Remission rates in late stage Post. Menopausal
Breast Cancer

ANTIOXIDANTS in general. Chemo works by
creating Oxidative Damage to kill cancer cells.
Most Oncologists do not support their use
during Chemo



CHEMOTHERAPY

In Vitro and Double blinded studies done by Japanese Researchers do not support these restrictions . Findings Suggest that combining Vit-C, Vit-E and N-Acetyl Cysteine protect against chemo induced Heart damage without interfering with Chemo action



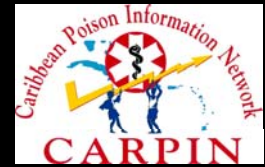
CHEMOTHERAPY

GLUTAMINE

In human studies d/n stimulate cancer growth
Studies support increased susceptibility of cancer
to radiation and chemo.

N-Acetyl Cysteine decr bladder toxicity of
Ifosfamide

Melatonin in high doses 20-40mg decr. SE and
incr. effectiveness of the Chemo Drugs

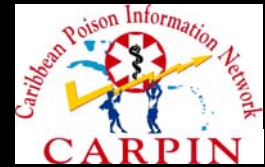


CHEMOTHERAPY

HERBS Coriolus versicolor extract PSK a polysacc added to Chemo incr. survival rate – 25% > 10 year survival

Milk thistle ext. Silymarin can act synergistically. with Cisplatin and Doxorubicin in vitro

Eleutherococcus senticosus Russian research showed when combined with Chemo



CHEMOTHERAPY

Less toxicity in melanoma, able to tolerate more
Chemo in inoperable breast Ca. and improved
immune function when Chemo and radiation
was combined

THYMUS PEPTIDES

Proteins derived from the thymus gland injected
lead to increased survival times, ▼. SE from
Chemo and improved immune function in
Natural Killer cells



CHEMOTHERAPY

SPECIFIC DRUG-NUTRIENT INTER.

Methotrexate works by blocking Folic Acid activation therefore give Folinic Acid rescue

Food can interfere with oral absorption and Alcohol can incr risk of liver damage

Doxorubicin Carnithine (animal res) ▼ toxicity Prior treatment with CoQ10 can prevent toxicity



CHEMOTHERAPY

Methotrexate Vit-C, Vit E Riboflavin and N Acetyl Cysteine can protect against Cardiotoxicity.

Cisplatin depletes Calcium, Phos, Mg and K because of kidney damage high doses of Selenium protect against kidney damage. Glutathione IV can decr assoc neuropathies



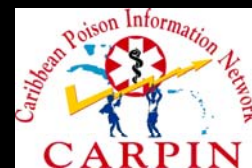
SUMMMARY

THIS DISCUSSION GAVE YOU INFORMATION ON HOW SOME HERBS OR NUTRITIONAL SUPPLEMENTS HELP DRUGS WORK BETTER, WHICH DRUGS AND SUPPLEMENTS SHOULD NOT BE TAKEN TOGETHER AND WHICH DRUG SIDE EFFECTS CAN BE MINIMIZED BY TAKING THE RIGHT SUPPLEMENT OR HERB

REFERENCES



- A-Z Guide to Drug- Herb- Vitamin Interactions. Edited by Schuyler W. Linger. Prima Health (1999)
- Natural Medicines, Comprehensive Database (2006). Compiled by editors of Pharmacist's Letter and Prescriber's letter also available as PDA Version with web access.



THANK YOU