MedNut Mail

The How, When, Where, Which and Why of pharmacotnutrition

Drug-food interactions advice

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https://medicationsandnutrition.online

Commentary

Drug-food interaction advice is quite inconsistent and falls into three main groups – advice not provided, food contra-indicated, and advice yet-to-be-determined.

Examples of advice not provided include:

- typically, advice is only given to abstain from alcohol intake whilst consuming antibiotics and yet there is an extensive range of drugs whereby alcohol intake is contra-indicated;
- a low-salt diet no longer seems to be advised if prescribed antihypertensives, and yet a low salt-diet is associated with a smaller drug dose;
- no-one is advised to avoid the methylxanthine or phosphodiesterase inhibitor foods which include caffeine, theobromine and theophylline; and which interact with a range of drugs;
- potentially - it seems unlikely people will be advised to avoid pepper if the current research supports initial findings.

Examples of foods contra-indicated advice include:

- grapefruit products, regardless of consistency of intake. Evidence now indicates that if the grapefruit products have been hot-filled, and/or stored at room temperature for an extended time then the drug interaction potential is reduced significantly;
- early evidence indicates cranberry products interact with a similar range of drugs to grapefruit so it seems likely people will be advised to avoid cranberry products if the research supports initial findings.

Examples of advice yet-to-be-determined include:

- evidence shows cocoa is the next “wonder” food that will cure-all – it seems unlikely people will be advised not to consume cocoa-based products such as chocolate whilst antihypertensives are prescribed;
- there is increasing evidence that body pH can be manipulated by dietary means – it seems unlikely people prescribed drugs such as allopurinol will be advised to follow a high-alkaline diet;
- there is increasing evidence of a range of foodstuffs that have ACE Inhibitor potential - it seems unlikely people prescribed ACE Inhibitor drugs will be advised to

alter the ACE Inhibitor foodstuffs in their diet.

There seem to be two main arguments that can be raised regarding the inconsistency of advice pertaining to drug-food interactions -

1. **consistency in intake** – inconsistent or irregular intake is the primary cause of problems however this information is not passed on to the consumer;
2. **significant change to diet will be very difficult** - there are groups of people such as those diagnosed with coeliac disease who are advised to make significant dietary change and they do – and with varying levels of success, so drug-food interactions advice should be passed on to all consumers who can then decide their degree of compliance for themselves.

If an argument is raised that there is dietary consistency in intake for alcohol, salt and caffeine, then the argument also applies to those people who consume grapefruit, cranberry and cocoa on a regular daily basis – so why are there recommendations for some of these foods to be avoided but not others?

What action(s) will you initiate -

- check whether each person in your care is aware of the potential for drug-food interactions with some of their food choices?
- identify foods of significant risk for interaction with some of the prescribed medicines in the population you work with, recommend caution to the person in your care and then contacting GP and/or pharmacist about the potential problem?
- if someone in your care does comment on an adverse event, notifying TGA through the relevant channels?

Case study

Medical History with Nutritional Aspect

Amputation	☐	Constipation	☐	Dysphagia	☐	MND	☐
Anaemia	☑	CVA	☐	Enteral Feed	☐	MS	☐
Arthritis	☑	CVD	☐	Falls	☐	Osteoporosis	☐
Cancer	☑	Dementia	☐	Fracture	☐	PD	☐
CCF	☐	Dentures	☐	Frailty	☐	Pressure Area	☐
Chest Infection	☐	Depression	☐	Gout	☐	Renal	☐
COAD	☐	DM Type 1	☐	Hypertension	☑	Ulcer	☐
Confusion	☐	DM Type 2	☐	Incontinent	☐	UTI	☐

Food Allergies: Ca bowel, diverticulosis

Other: GORD, hyperlipidaemia, BCC, bilat THR, neuralgia

Biochemistry with Pharmaconutritional Consequences

No recent relevant data available

Medications That May Adversely Affect Nutritional Status

Drug	Vits + Mins	bpp >90%	N/V	C/D	Wt	App	Tst	Thir	Sal	Drlg	d m	Dys	BSL
BUSCOPAN		☐		C			☐		↓		☑	☐	☐
Cholecalciferol	(1000 IU/day)	☐					☐				☐	☐	☐
Clopidogrel		☑	N	CD	↓		☑				☐	☐	☐
Esomeprazole	(20 mg/day) B1, B12, Ca, Fe,	☑	NV	CD	↑		☑				☑	☐	☐
Irbesartan		☑	NV	CD	↑	↕	☑				☑	☑	☐
Mirtazapine		☐	N	D	↑	↑	☐				☑	☐	☐
Paracetamol		☐	NV	CD			☐				☐	☐	☐
VALPAM		☑	N	C			☐		↓		☑	☐	☐
Verapamil	carnitine	☑	N	CD			☐				☑	☐	☐

Extra drug:

Comments – medication and nutrition impacts (direct and indirect) only

No recent relevant biochemistry available. Advisable to check plasma proteins (albumin, total proteins) as markers of nutritional status. The plasma proteins are the primary transporters for 5 of the prescribed drugs and hypoproteinaemia may alter their effects including expression of their side effects.

Since cholecalciferol is prescribed as a therapeutic intervention advisable to check vitamin D levels and ensure well within acceptable range.

Esomeprazole decreases B12, vitamin C, magnesium, zinc and iron absorption, may decrease calcium absorption, and decreases thiamine availability.

Regular monitoring sodium levels recommended whilst mirtazepine prescribed.

Dietary levels of caffeine intake in conjunction with paracetamol inhibit antinocieception (pain management).

Staff advise Mrs AAN is eating well and that she has lower gastro upset and upset bowels.

Since Mrs AAN is pale and has lower gastro upset advisable to check iron levels and clarify status; her risk of anaemia is exacerbated by the esomeprazole prescription. There are now suggestions that anaemia be managed non-orally especially if PPIs are prescribed.

Advisable to review duration of esomeprazole prescription and clarify whether the prescription is still required – long term prescription of PPIs is associated with -

- increase risk of hazelnut protein sensitisation;
- subsequent coeliac disease diagnosis – proposed mechanism is partial digestion of peptides to a fragment that can be absorbed and may become an initiator of the inflammatory response to gluten;
- reduced magnesium absorption.

Commencement of esomeprazole indicates prudent clinical practice for B12 management as outlined -

- establish B12 status at commencement of drug treatment, and monitor on a regular basis (at least annually), or
- commence a prophylactic B12 intervention with oral supplements as they are not protein-bound and therefore do not require gastric acidity for absorption, and monitor status on a regular basis.

Given staff reports of upset bowels advisable to review current medications as most impact bowel status.

Impacts on thiamine transporters -

- Inhibitory action – clopidogrel, esomeprazole, verapamil, mirtazapine, and valpam,
- Substrate (can ride the transporter) action - verapamil,
- Outcome is decreased thiamine uptake from intestines, by many organs including liver, kidneys and skeletal muscles.

Mrs AAN range of prescribed medicines is not unusual for an elderly person, however is significantly in excess of the Australian Association of Gerontology's recommendation of 3-5 different drugs per day; there is a broad range of side effects and nutrients impacted.

What else would you include?

Medications have profoundly and positively changed health outcomes however they do generally come with some nutritional harms. By identifying and addressing the nutritional harms, optimal health outcomes are closer to being achieved.

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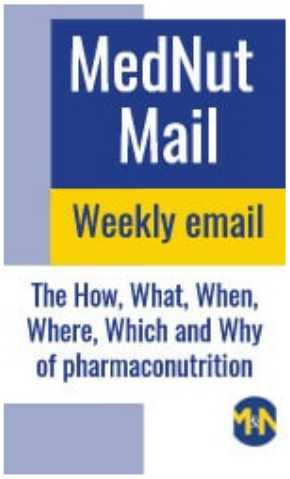

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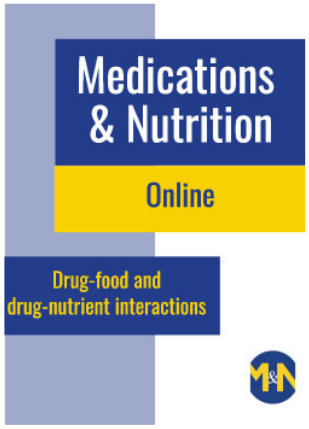

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