MedNut Mail

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

Potential pharmaconutrition research topics 1

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https://medicationsandnutrition.online

Commentary

Twenty years ago, this was a very short list! Of necessity this list has grown as there has been minimal research to address these and other questions. This is the first of a monthly 3-part series.

Nutrition research, including pharmaconutrition, is an interesting and challenging field, with an added dimension that is not integral to any other area of research – the reversibility/irreversibility component of the nutritional physiological response.

For those who are particularly frustrated and irritated by the lack of knowledge in pharmaconutrition, would like to be both leaders in this field of pharmaconutrology and are looking for an interesting research topic (PhD, Masters, Honours) I have identified 8 knowledge gaps that, when addressed, will contribute to improved health outcomes of individuals.

1. identification of the drugs that can and cannot be concurrently administered with an enteral feed, and identification of the time gap between cessation of enteral feeding and drug administration, the time gap until recommencement of the enteral feed, and whether a time gap is required;
2. identification of the drugs that have an altered effect due to concurrent administration of mineral supplements and whether the effect is a generic effect to all minerals, groups of minerals such as cations, or individual minerals, and whether the minerals in foodstuffs also have an effect;
3. identification of all the drugs that alter the availability and effect of each of the vitamins, and vice versa, and the mechanisms of action;
4. identification of the commonly consumed foodstuffs that are associated with the cytochrome P450 3A4 and other isozymes, that do and do not necessitate dietary modification;
5. identification and quantification of the melatonin content of commonly consumed foodstuffs;
6. clarification of the importance of the tryptophan-drug interaction and whether dietary modification should be recommended;
7. clarification of the effects of excipients on nutritional status. Some excipients such as gluten, lactose, galactose, phenylalanine have known independent, harmful effects in specific populations, however, the effects of other excipients

are not known and may also have independent effects. For example, the trivalent cation chromium is often administered as chromium picolinate however there is some evidence that indicates picolinate is associated with the cytochrome P450 pathway isozyme 3A4 and could potentially interact with a similar range of drugs to grapefruit;

8. Drugs such as the phenothiazine antipsychotics and methotrexate are nutrient derivatives based on riboflavin and folic acid respectively. Does one assume that if there is an interaction between a drug and a nutrient-derivative drug that there is also an interaction between the drug and the underlying nutrient and/or foodstuffs high in that nutrient?

Conclusions

There are many aspects of pharmaconutrition that are not understood. However, pharmaceutical products continue to be prescribed in the absence of adequate knowledge in this area even although their effects particularly impact on the health and well-being of the long-term consumers of polypharmacy.

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:

Other: chronic back pain, shingles, # NOF, neuropathy

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
ACTILAX		☐	NV	D		↓	☐				☐	☐	☑
Escitalopram		☐	NV	CD	↕	↓	☑				☑	☐	☑
NEO-B12	2/12ly; due 06/19	☐	NV	D			☐				☐	☐	☐
		▩					▩				▩	▩	▩

Extra drug: norspan

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

Chronic use of actilax may promote excessive loss of water and electrolytes, especially potassium, and their regular monitoring recommended.

Currently prescribed B12 intervention, administered every 2 months, which has been prescribed since at least admission ie August 2015; B12 levels in September 2015 > 1476. Evidence indicates elevated B12 levels diminish cognitive function therefore advisable to check B12 levels prior to next intervention, and if above acceptable range, then advisable to review two-monthly administration and consider six-monthly interventions.

Escitalopram inhibits (thiamine transporters).

- **OCT1** – facilities liver uptake of thiamine;
- **OCT2** – facilitates kidney uptake of thiamine;

Therefore at increased risk of thiamine deficiency, advisable to monitor thiamine status and consider administering thiamine intervention either one hour before or 2 hours after drug administration.

What actions will you initiate as a consequence of this case study -

- review B12 levels and ensure well within acceptable range, and if not then advise appropriate interventions?
- if elevated then recommend reviewing frequency of B12 interventions, and continue to monitor status?
- recommend monitoring thiamine levels on a regular basis ie every 6 months to monitor escitalopram impact on thiamine status?

This is a small case study, and yet the negative impacts on both thiamine and B12 levels is quite profound.

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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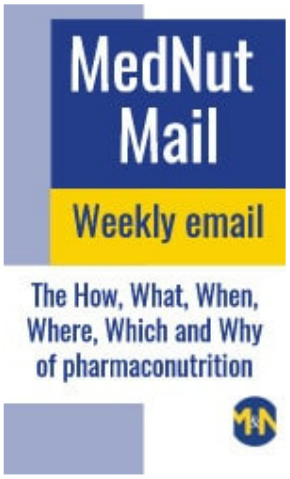

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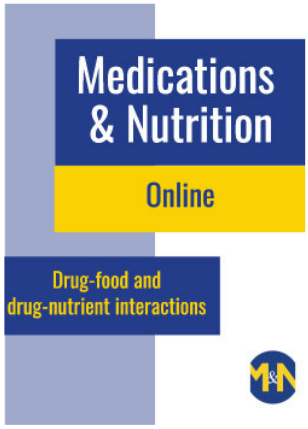

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