MedNut Mail

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

Harm minimisation and pharmaconutrition

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https://medicationsandnutrition.online

Commentary

Supported by policies, practices and programs, harm minimisation is essentially a philosophy, in a range of sectors, to minimise harm rather than to prevent harm.

Harm minimisation due to harmful substances or behaviours, can be achieved by the introduction of programs and practices that focus on -

- **Demand** – reducing ease of accessibility, information and awareness campaigns, treatment programs, etc;
- **Supply** – reducing ease of availability such as border controls and purchasing periods, regulations for defined access, substance intercepts such as seizures and arrests, substance location identification such as waste water analysis, defined minimum purchasing age, etc;
- **Harm** – supporting behaviour change such as needle exchange programs, opioid-dependence treatment programs, sobering up services, safe injection sites, safe sex programs, drink-driving messages, **slip slop slap programs, sunscreen campaigns, mandatory seat belts, road and vehicle speed limits, etc.**

"Harms" can include -

- **Health** – injury, chronic conditions, preventable diseases, mental health problems, road trauma, etc;
- **Social** – crime, intergenerational trauma, domestic and family violence, child protection, etc;
- **Economic** – healthcare costs, law enforcement costs, reduced productivity costs, criminal activity consequences, etc.

Harm minimisation strategies target specific issues — often with specific population groups — and develop strategies to minimise the harm caused by the behaviour. If we consider pharmaconutrition, then there are groups of people who are prescribed specific drugs known to confer both benefits and harms, and the harm minimisation concept could be utilised to optimise their health outcomes.

Currently the impact of prescribed medications on nutritional status, and the impact of nutrition factors on the effects of prescribed medications is considered to be a clinical-only issue. However, it is an issue that could be included in the harm minimisation concept, particularly in the areas of health and economics.

EXAMPLE – Metformin and thiamine

Issue - we know that thiamine and metformin compete for absorption, distribution and excretion as both utilise the same transporters; whichever substance occupies the transporter first means the other substance cannot.

Target Group – people diagnosed with non-insulin dependent diabetes and prescribed metformin.

Strategies – the distribution of education material through diabetes support groups, diabetes clinics, and GP and Endocrinologist waiting rooms, advising the importance of monitoring thiamine levels on a regular basis, such as annually, whilst metformin is prescribed; this also indirectly informs and reinforces to the GPs and Endocrinologists the importance of regular monitoring of thiamine status.

Outcome - this is a low-cost strategy that can be broadly distributed to the target group at relatively low cost and also means there is earlier intervention to delay/minimise thiamine deficiency-induced outcomes in those who are prescribed metformin for the management of their diabetes.

The concept can be applied to other discreet, identifiable groups such as those with parkinsons disease, epilepsy, mental health, and many others.

What actions will you initiate to increase awareness of importance of pharmaconutrition - will you –

- develop leaflets for those in your care with discreet chronic illness and prescribed specific medications?
- speak to a range of chronic unwellness groups about the importance of monitoring nutritional factors impacted by their prescribed medications?
- organise a half-day education session for health professionals, with a range of topics relating to medicine and nutrition and include a specific presentation on pharmaconutrition?
- schedule a “pharmaconutrition year” whereby every month there is as awareness-creating strategy such as a poster campaign, editorial in the local newspaper, stall at a local Festival/Show, request your local MP to fund a mailout, etc, targeting both the community and health sector?

This is based on current research – you have to decide whether you are being progressive or negligent in integrating it into your daily clinical practice before it is integrated into Clinical Practice Guidelines.

Conclusions

Pharmaconutrition can fit nicely into the harm minimisation concept.

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: intellectual disability

Other: schizophrenia, paranoia, vit D def

Biochemistry with Pharmaconutritional Consequences

No recent relevant biochemistry 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
Cholecalciferol	(3/day)	☐					☐				☐	☐	☐
FERROGRADUMET	Ca, Mg, Zn	☐	NV	CD			☐				☐	☐	☐
Olanzapine		☑		C	↑	↑	☐				☑	☐	☐
		▩					▩				▩	▩	▩

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

Biochemistry comments

No recent relevant biochemistry available. Advisable to check plasma proteins (albumin, total proteins) as they are the primary transporters for five of the prescribed drugs and hypoproteinaemia may alter their effects and side effects.

Glycaemic comments

Olanzapine may alter glycaemia.

Bowel management comments

- no regular intervention prescribed,
- no PRN interventions prescribed,
- no Nurse Initiated interventions administered.

Staff comments
Staff advise Ms ABY has been prescribed vitamin D since admission, and possibly before then. Advisable to clarify vitamin D levels and if still low then advisable to review the current management strategy.

Observations
Ms ABY is a small, pale, charming lady with a significant kyphosis, and who told me she eats well - she does not appear to be overweight.

Pharmaconutrition comments
Ferrous sulfate decreases zinc absorption therefore advisable to clarify zinc status and if low then advisable to consider a short term (90-120 days) intervention.

Staff advise Ms ABY has been prescribed an iron intervention since admission, and possibly before then. Long term oral iron interventions are not recommended, therefore advisable to clarify iron status and if -

- within acceptable range then review necessity for its continued prescription,
- low then consider an alternate, non-oral intervention such as an iron infusion.

Summary of organs and some transporters, relevant prescribed medications, and impacted nutrients

Organ (transporter)	Thiamine	Choline
Liver (OCT1 inhibitor)	Olanzapine	Olanzapine
Kidneys (OCT2 inhibitor)	Olanzapine	Olanzapine

Organ uptake of 2 key nutrients is inhibited by one of the prescribed medicines therefore it remains in the blood.

It is likely blood test results for thiamine and choline will reveal high-normal or elevated nutrient levels; duration of inhibition is currently unknown therefore fasting results are likely to be more reliable. Except for pyridoxine (B6) we don't know how elevated blood nutrients are expressed in the body so we don't know what factors to monitor.

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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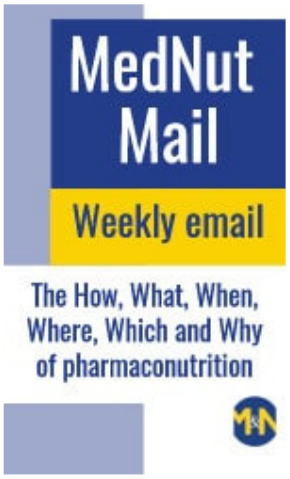

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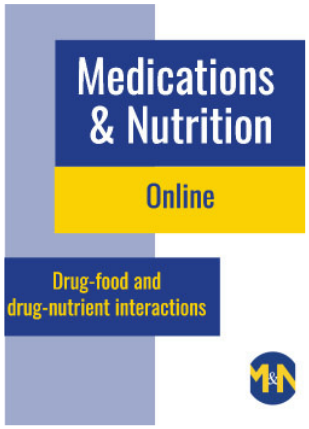

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