MedNut Mail

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

Should we have nutrient budgets?

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https://medicationsandnutrition.online

Commentary

Money and nutrients have some surprising commonalities –

- similar income/intake on a relatively regular basis,
- other income/intake on a regular basis,
- regular costs,
- pleasure costs.

Money management typically starts with a budget – with a defined portion of money being allocated to various accounts such as regular bills, mortgage/loan repayments, Xmas/holidays, savings, and what's left, and possibly a bit more, is spent on current pleasures. There is also other income such as interest paid on bank deposits and returns on investments.

Nutrition management typically does not include a "nutrient budget" for defined "spending on energy", and so pleasure costs are prioritised. Regular nutrient costs include the metabolic requirements for the body to function and the longterm prescribed medication impacts on individual nutrients; unaccounted costs include the stresses and presumed increases in operating costs due to a longterm chronic diagnosis, and savings would be replenishment of nutrient stores. As neither the longterm prescribed medication impacts have been quantified nor the unaccounted costs relating to stresses and chronic unwellness, it is very difficult to "budget" for them. The "other income" equivalent would be the supply of nutrients from the gut microbiota – this source is not well-researched and so we don't know whether the input is similar to savings account interest ie negligible at this stage or higher as in returns from investments. This income/intake source is likely to be compromised with sustained longterm consumption of prescribed medications.

When we have more financial costs than our regular income then we draw on our reserves or savings. Likewise with nutrients, when there is an inadequate availability of all relevant nutrients to metabolize that energy from within the energy source then we draw on our reserves or stores for those that are missing and/or for which there is an inadequate availability.

When we consistently draw on our financial reserves they become depleted and then there are penalties such as interest, penalty interest, late payment fees, etc. It is similar with the availability of our nutrients ie lack of adequate availability results in consequences and the well-known example is thiamine deficiency – sustained short term inadequate intake results in Wernicke's Syndrome

whilst sustained longterm inadequacy results in the irreversible Korsakoff's Psychosis.

When there are insufficient financial reserves the financial institutions step in rather quickly and encourages us to change our consumption patterns until we again have adequate reserves. This is not the case with nutrients as a sustained nutrient inadequacy may not be blatantly obvious and there is no intermediary or gatekeeper to step in and create an awareness, so nutrient intake inadequacies may result in irreversible changes to body function without any personal awareness, or the unwellness is blamed on other factors.

Many nutrition pleasures increase the nutrient requirements for the metabolism of the energy associated with the pleasure ie many pleasure costs provide energy (calories) without an adequate supply of necessary nutrients to pay for them. This is the same as having a credit card – spending at whim without having the money readily available to pay now.

And the truly hidden nutrient cost is the negative impact of toxic metals. How much do toxic metals diminish response to therapeutic interventions and increase nutrient requirements due to their displacement of therapeutic interventions and nutrients? Toxic metals would be the equivalent of bank fees and government charges on all transactions.

The general belief is that we 'eat adequately to meet our nutritional needs", but do we? The supermarket purchases and rapid growth in fast food consumption suggest it is likely energy needs are being met but not the nutrient requirements to metabolize the energy; when energy is not metabolized it is stored as fat.

Further, the recommended intakes for a range of nutrients have been based on people without disease – we don't know the degree of increase in nutrient requirements due to disease and its associated stresses. What percentage of the recommendation should we factor in to accommodate unwellness? Should we be recommending a doubling of each nutrient's recommendation, a tripling, a quadrupling, perhaps more? Or should there be a ranking similar to that of energy consumed based on the level of exercise?

We have all seen various financial budget models however given there aren't any nutrient budget examples we will have to speculate on what one would look like, and there seem to be 2 formats:-

- given people are familiar with weight charts that state if you are X height then you should weigh Y kgs, energy and nutrient charts could be based on the same concept ie if you weight Y kgs then you require Z kJ (energy) to maintain weight and you need to consume A amounts of

nutrients for this energy to be properly metabolized.

- In order for each 1,000 kJ to be metabolized adequately you require A amounts of nutrients. Once you know much do you weigh (formula), calculate the amount of energy you require to meet your metabolic requirements (formula), and multiply by B factor rating to address the increased nutrient demands due to your current diagnosis, prescribed medications, stress due to your chronic unwellness, personal idiosyncratic nutrient requirements.

Given that we, as clinicians, mostly consult with people who have chronic health issues, how do you address the lack of a "nutrient budget"? Do you -

- monitor blood test results and aim to maintain nutrient levels in the upper 50% or top 75% of recommended range?
- use the recommended intakes as the minimum amount required and then add a percentage more?
- discuss a nutrient budget?

Conclusions

Whilst many despair at the lack of money management displayed by some, no-one despairs at the lack of nutrient management displayed by most. Perhaps applying the money management model to nutrient management may improve nutrient awareness and the need for a "nutrient budget".

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: chronic pain, wandering behaviours, nasty wound

Other: deafness, hypercholesterolaemia, SCC, PU

Biochemistry with Pharmaconutritional Consequences

No recent relevant results 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
ALEPAM		☑	N				☐		↕		☐	☐	☐
Calcium carbonate	Fe	☐		C			☐				☐	☐	☐
COLOXYL WITH S		☐		D			☐				☐	☐	☐
COVERSYL		☐	NV	D			☑				☑	☐	☐
FOSAMAX PLUS D	Ca, Fe	☐	NV	CD	↑		☑				☐	☑	☐
Metoprolol		☐	NV	CD	↑		☑				☑	☐	☑
PANAMAX		☐	NV	CD			☐				☐	☐	☐
RISPERDAL		☑	NV	C	↑		☐		↑		☐	☐	☐

Extra drug: arginaid (1 sachet/day), norspan

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

No recent relevant available biochemistry. Advisable to check plasma proteins (albumin, total proteins) as markers of nutritional status. The plasma proteins are the primary transporters for 2 of the prescribed drugs and hypoproteinaemia may alter their effects.

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

Coversyl impairs zinc status.

Fosamax Plus D-Cal provides elemental calcium 500 mg, vitamin D 140 mcg (5600 IU).

Dietary levels of caffeine intake in conjunction with panamax inhibit antinocieception.

Prescribed 3 drugs that are associated with increased risk of diabetes being coversyl, metoprolol, and Risperdal.

Mrs AAW is a pale, rubinesque lady who was sitting in the Dining Room when I went to speak to her - her comments were not necessarily related to our questions.

Since Mrs AAW is pale, advisable to check iron levels and if low then short term (90-120 days) intervention recommended. If an iron intervention is to be administered then advisable to administer at a different time from panamax to reduce potential drug-nutrient interaction.

Three drugs inhibit various thiamine transporters and are oxazepam, metoprolol and risperdal.

What else would you include?

Should we have nutrient budgets?

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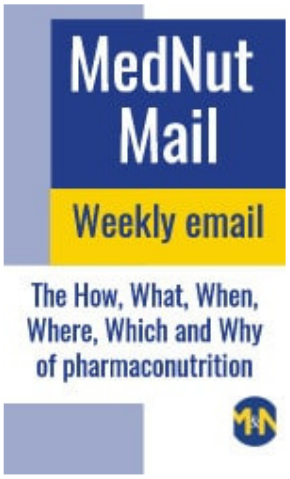

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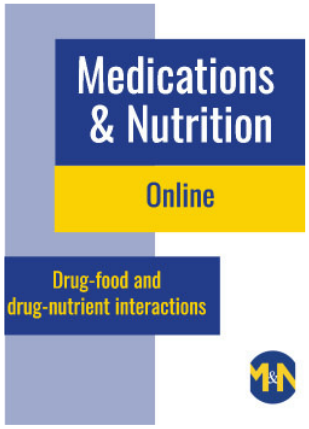

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