MedNut Mail

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

Templates of common clinical observations 2

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https://medicationsandnutrition.online

Commentary

Templates are useful for ensuring essential information is passed on without any aspect being overlooked as they can be copied, pasted and modified as required. These templates have focussed on some of the negative nutritional impacts of proton pump inhibitors (PPI) primarily because they seem to be about as popular to consume as lollies!

*Currently prescribed the daily double ie two drugs that decrease magnesium availability – being **XXXX** and **XXXX**. OR A **PPI** has been prescribed since admission ie **XXXX (period of time)**, and probably before then and there is increasing evidence that proton pump inhibitors such as **XXXXXX** significantly impair magnesium absorption.*
Magnesium deficiency manifests as confusion, disorientation, personality changes, loss of appetite, depression, muscle cramps, tingling, numbness, hypertension, cardiac dysrhythmia, seizures, decreased absorption of thiamine, vitamin C, vitamin D and iodine. Magnesium is an intracellular ion therefore serum levels are unlikely to detect early depletion of status. Cellular magnesium status is unknown whilst magnesium levels within acceptable range however if magnesium levels are low then typically indicates significant cellular depletion and intervention recommended. **Men (Women)** require **420 mg (320 mg)** magnesium per day; however there are side effects from magnesium interventions that provide 350+ mg elemental magnesium/day from non-food sources. Advisable to check magnesium levels and if still marginal/low then review current magnesium intervention and consider an intervention that provides about 300 mg elemental magnesium per day.

XXXX has been prescribed a proton pump inhibitor for many years/since admission in **XXXX** and likely before then. There is increasing evidence that longterm (3+ years) proton pump inhibitor prescription is associated with
- altered gut microbiome;
- increased risk of food sensitivities at a level of peanut allergy, due to partial protein digestion;
- increased risk of coeliac disease due to partial protein digestion;
- increased risk of scurvy;
- generalised malnutrition due to impaired absorption of a range of nutrients such as B12, vitamin C, magnesium, zinc, iron, thiamine, etc;
- altered gastric pH which reduces absorption dynamics of a range of drugs and nutrients. Altered drug availability is relatively easily identified however reduced nutrient absorption is rarely identified due to the non-specific nature of their signs and symptoms.

Consequently advisable to reconsider reviewing current proton pump inhibitor prescription and consider

- whether proton pump inhibitor prescription is still required;
- if suppression of gastric acidity is still required then could it be managed with an H2 antagonist such as ranitidine (there is a general belief that they cause less nutritional harm than proton pump inhibitors).

XXXX was prescribed **PPI** until **20XX** when it was ceased. There is increasing evidence that proton pump inhibitors such as **PPI** significantly impair zinc absorption - zinc is important in sense of taste, release of the hunger hormone Neuropeptide Y, and insulin production amongst other functions. Advisable to check zinc levels and if low then short term (90-120 days) intervention recommended.

XXXX is prescribed **PPI** which both includes decreased appetite as a side effect and seemingly no diagnoses to support its ongoing prescription. Since poor appetite is a current major concern advisable to consider
- whether proton pump inhibitor prescription is still required;
- if suppression of gastric acidity is still required and if so then could it be managed with an H2 antagonist such as ranitidine (there is a general belief that they cause less nutritional harm than proton pump inhibitors);
- if the proton pump inhibitor intervention can be ceased until appetite improves.

Evidence indicates iron deficiency anaemia is unlikely to resolve whilst a proton pump inhibitor such as **XXXX** is prescribed. Advisable to consider a non-oral iron intervention to maximise effectiveness of the intervention.

Calcium carbonate requires gastric acidity for absorption however **PPI** prescribed therefore advisable to consider either

- calcium citrate which does not require gastric acidity for absorption, or
- ensuring calcium carbonate is administered with or immediately after meals.

What templates will you create to optimise your assessment reports – will you -

- use and/or modify the enclosed templates?
- create your own templates that suit your clinical style and client base?

Conclusions

For those times when one is stressed and/or tired, templates can reduce the time cost of assessment reports especially if the changeable components are easily identifiable – I use bolding and italics to highlight changeable bits whilst you might use different coloured text.

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: blindness, chronic pain, oedema, GORD

Biochemistry with Pharmaconutritional Consequences

Na:	139	mmol/l	Hb:	124	g/L	Albumin:	30	g/L	BSL:		mmol/l
K:	4.0	mmol/l	Lymph:	1.3		Total Protein:	63	g/L	HbA1C:		
Urea:	5.5	mmol/l	MCV:	75	mmol/l	B12:		pmol/L	INR:		
Creatinine:	0.035	mmol/l	Zn:		umol/l	Folate:		nmol/L	TSH:	0.76	mIU/L

Other: eGFR > 90, CRP 79.8, Ca 2.17, Ca corr 2.32, Mg 0.76, phos 1.08, vit D 55

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		↓	☐				☐	☐	☑
FEBRIDOL		☐		NV	CD			☐				☐	☐	☐
FERRO-F	Ca, Mg, Zn	☐						☐				☐	☐	☐
SOMAC	(40 mg/day) B1, B12, Ca, Fe,	☑		NV	CD		↓	☑				☑	☐	☐
TARGIN		☐		NV	CD		↕	☑				☑	☑	☐
TEMAZE		☑		NV	C			☑		↕		☑	☐	☐
		▩						▩				▩	▩	▩

Extra drug:

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

Available, relevant biochemistry indicates

- low magnesium - likely exacerbated by somac prescription. There is now a recommendation that acceptable lower limit be set at 0.80 units, therefore advisable to recheck status and if still less than 0.80 units then intervention recommended. Ladies require 320 mg elemental magnesium/day, non-food interventions providing more than 350 mg elemental magnesium per day are associated with side effects therefore advisable to consider an intervention that provides about 300 mg elemental magnesium/day.

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

Currently prescribed Ferro-F which contains both ferrous fumarate and folate. Advisable to check Serum Iron Studies and folate levels to ensure all relevant markers are within acceptable ranges as the degree of negative impact of the prescribed proton pump inhibitor on iron and folate is unknown. Further, evidence indicates excessive folic acid intake diminishes cognitive function.

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

Concurrent ingestion of febridol and iron resulted increased rate of iron absorption and decreased extent of drug absorption; the authors advise drug and iron to be administered at different times from each other.

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

Commencement of the drug indicates prudent clinical practice for B12 management as outlined:-

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

Mrs ABC is a very small, frail lady with a significant tardive dyskinesia that costs a lot of energy (calories); from staff comments it seems increasing food serves is unlikely to be a successful option. Mrs ABC no longer walks which means reduced energy (calorie) expenditure.

Mrs ABC's diagnoses include -

- **Chronic pain**. Nutritional factors that may be useful to consider in pain management include vitamin C as pain increases the reactive substances (formerly Reactive

Oxygen Species) within cells. Vitamin C is important in quenching reactive substances and if there is insufficient vitamin C then cell status becomes compromised and the cells typically die which also causes pain. Advisable to consider a vitamin C intervention - the optimal intervention is 500 mg vitamin C/day (if more than 500 mg vitamin C administered in one dose then the excess above 500 mg is not absorbed as the vitamin C transporters are overloaded). Vitamin C is not considered part of the pain management armament however it won't cause harm and evidence suggests it may confer benefit. Currently prescribed somac which decreases conversion of vitamin C to its active form.

- **Anaemia**. Seemingly currently resolved however advisable to monitor status whilst a proton pump inhibitor is prescribed.
- **Falls**. Vitamin B12 is important in the righting reflex however status has not been checked and a proton pump inhibitor is prescribed. Advisable to clarify current B12 status and to monitor on a regular basis ie at least annually to ensure status remains within acceptable range.
- **Incontinence**. Advisable to clarify B12 status and ensure within acceptable range as inadequate B12 status is associated with increased risk of incontinence, and currently prescribed a proton pump inhibitor.

Both somac and targin inhibit various thiamine transporters therefore advisable to consider a thiamine intervention and for it to be administered at a different time from these prescribed medications.

What else would you include?

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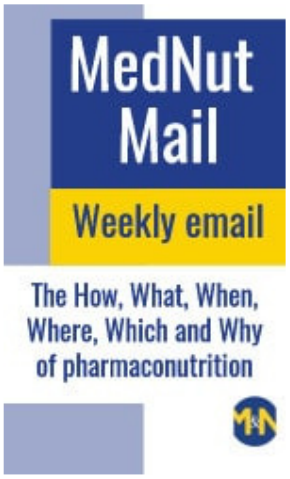

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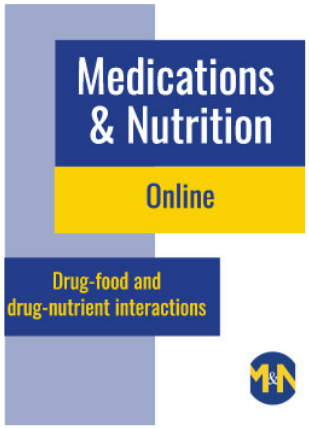

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