

Drug-Induced Nutrient Depletion

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Disclosure

**“Harlan Bieleley, MD, MS is the owner/inventor
of
US Patent 8,889,194”**

Our Purpose Today

Reveal roughly half of drugs used approximately 20 years ago cause drug-induced nutrient depletion.

As doctors we typically consider...

- History of the Present Illness, HPI:
- Along with
- Allergies
- Medicines

Why?

- Because we would not want to give a drug to the patient who is obviously allergic to it.
- Also, we consider medicines that might cause a drug-drug interaction, side effect.

Rise in pharmaceutical drug usage

- In the USA, the rise in using 2 or more drugs has risen 20% in the past 10 years; and 5 or more drugs has risen 70%
- <http://thenationshealth.aphapublications.org/content/40/8/E37>
- In China, the number of prescription drugs has risen in 10 years from approximately 60,000 to over 260,000 in 2020. https://www.researchgate.net/figure/Chinas-GDP-and-pharmaceutical-expenditure-US-millions-nominal_tbl4_264539552
- “Polypharmacy has also arisen from the success of pharmaceutical research and development ...and of the willingness of consumers, governments and society to pay for them.”
<https://www.pharmaceutical-journal.com/opinion/insight/how-polypharmacy-has-become-a-medical-burden-worldwide/20201251.article?firstPass=false>

The rise of polypharmacy and side effects from drug/drug interactions

- Prescription drug data- older people in Sweden:
- those taking 5 to 7 medicines were 4 times more likely to experience a drug-drug interaction;
- 8 to 10 medicines were 8 times more likely
- 14 to 16 medicines daily were 20 times more likely

<https://www.pharmaceutical-journal.com/opinion/insight/how-polypharmacy-has-become-a-medical-burden-worldwide/20201251.article?firstPass=false>

Unmet and Underappreciated

- An unmet and underappreciated need that the medical community needs to consider...
- Drug-Induced Nutrient Depletions.

Not typically considered: Drug-Induced Nutrient Depletions

source: Drug-Induced Nutrient Depletion Handbook Ross Pelton, James LaValle

Drug-Induced Nutrient Depletion

- About half the drugs used in clinical practice have documented nutrient depleting effects.
- Co-enzyme Q10, folic acid, B2, B6, Mg, Zn are nutrients most likely to be depleted.
- Mechanisms include impaired absorption or bioactivation; increased excretion.

Drug-Induced Nutrient Depletion

- References:
- 1) Pelton R, LaValle JB, Hawkins EB, Krinsky DL. Drug-Induced Nutrient Depletion Handbook, 2nd Edition. Lexi-Comp, Inc, and Natural Health Resources, 2001
- 2) Smith, P., What You Must Know About Vitamins, Minerals, Herbs, and So Much More. Garden City Park, NY: Square One Publishers, 2020

Drug-Induced Nutrient Depletions

- Female Hormones/BPC's, Oral Contraceptives: (increase SHBG, thus lower Testosterone, check Testosterone levels) Fatty acids, Vitamins B1, B2, B3, B6, B12, Mg, Se, Zn, Tyrosine, Co-Q10, Vitamin E

Anti-ulcer meds: Vitamins B12, fatty acids, Vitamin D, Ca, Fe, Zn, protein

Antibiotics: B-vitamins, Vitamin K

Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-induced nutrient depletions

Anticonvulsants: Fatty acids, Vitamins D, K, calcium

- Anti-Diabetic drugs: Co-Q10, fatty acids, B12.
 - Metformin: B12, folic acid
 - TZD's: bone loss
 - Sulfonylureas: Co-Q10
 - Biguanides: Co-Q10, B12, fatty acids

• Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced Nutrient Depletion

Anti-Hypertensives: B6, Co-Q10, Ca, Mg, Vit K,
Zn

Hydralazine: B6, Co-Q10

Ace inhibitors: Zn

Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced Nutrient depletions

- ASA/salicylates: Vitamin C, fatty acids, Vitamin B5, Ca, Fe, Na, K
- Acetaminophen: Glutathione (GSH)
- NSAIDS: folic acid, melatonin
- Anti-Inflammatory: Ca, Vitamin K, Zn, Fe, Vitamin B6, Vitamin C, Vitamin D, fatty acids

Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

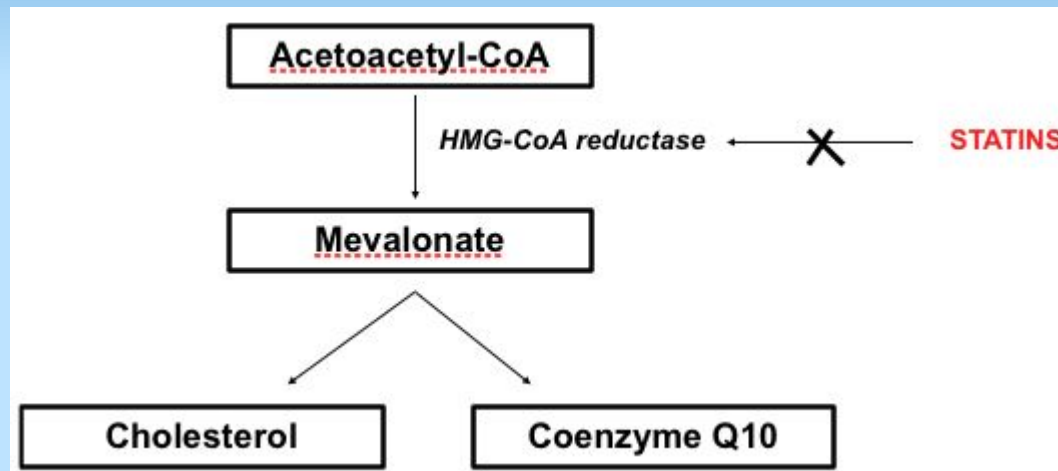
Drug-Induced Nutrient Depletions

- Anti-Cholesterol
 - Statins: Co-Q10
 - Fibrates: B12, Vitamin E, Zn, Cu
 - Gemfibrozil: Co-Q10, Vitamin E

Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

How statin drugs lower Coenzyme Q10

(ref: ubiquinol.org)



Drug-Induced Nutrient Depletion

- Bile acid sequestrants (cholestyramine):
Vitamins A, D, E, K, B12, Ca, Mg, P, Zn, Fe, folic acid, beta carotene, fatty acids
- Beta blockers: Co-Q10, melatonin
- Phenothiazines: Vitamin B2, Co-Q10, melatonin
- Tricyclics: Vitamin B2, Co-Q10
- Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced nutrient depletion

- MAOI: **Vitamin B6**
- Haloperidol: **Co-Q10, Vitamin E, melatonin**
- Lithium: **Inositol**
- Diazepam, Alprazolam: **Melatonin**
- Loop diuretics: **Ca, Mg, Vitamin K, Vitamin B1, B6, Vitamin C**
- Thiazide: **Mg, Vitamin K, Zinc, Co-Q10**
- Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced Nutrient Depletion

- Potassium sparing diuretics: Ca, Zn, fatty acids
- Digoxin: Ca, Mg, Phosphate
- Anticonvulsants:
 - Divalproex: fatty acids, carnitine, Cu, Se, Zn
 - Barbiturates: Vitamin D, K, fatty acids, biotin, Ca
 - Phenytoin: Vitamin D, K, B1, B12, fatty acids, biotin, Ca
 - Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced Nutrient Depletion

- Carbamazepine: Vitamin D, fatty acids, biotin
- Mysoline: Vitamin D, fatty acids, biotin, Ca
- Corticosteroids: Vitamin A, C, D,K, B6, B12, fatty acids, Ca, Chromium, Mg, Se, Zn
- Colchicine: B12, Ca, Na, Vitamin K, beta-carotene

Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Drug-Induced Nutrient Depletion

- Sulfasalazine: folic acid
- Indomethacin: folic acid, iron
- Laxatives: fat soluble vitamins (D,E,A,K)
- Antacids: Ca, PO₄(protein), folic acid

- Source: Dr. James LaValle, PhD. Drug-Induced Nutrient Depletion Handbook

Tobacco smoking- contains nicotine- a drug

- “**Nicotine** is a stimulant and potent parasympathomimetic alkaloid that is naturally produced in the nightshade family of plants. It is used for the treatment of **tobacco** use disorders as a smoking cessation aid and **nicotine** dependence for the relief of withdrawal symptoms.”
- -Wikipedia

Tobacco contains nicotine- an abused substance

- Nicotine is highly [addictive](#). It is one of the most commonly abused drugs.
- Tobacco laws regulate the sale of tobacco throughout the world.

- Grana R, Benowitz N, Glantz SA (May 2014). ["E-cigarettes: a scientific review"](#). *Circulation*. **129** (19): 1972–86.
- Holbrook BD (June 2016). "The effects of nicotine on human fetal development". *Birth Defects Research. Part C, Embryo Today*. **108** (2): 181–92.
- Sajja RK, Rahman S, Cucullo L (March 2016). ["Drugs of abuse and blood-brain barrier endothelial dysfunction: A focus on the role of oxidative stress"](#). *Journal of Cerebral Blood Flow and Metabolism*. **36** (3): 539–54.

Drug-Induced Nutrient Depletion

Tobacco Smoking and Secondhand Smoke:

- Vitamins: C, D3, E, A
- B-Vitamins: B2, B6, B12, biotin, folate
- Minerals: Calcium, Magnesium, Manganese, Selenium, Zinc, Copper
- Antioxidants: Glutathione, Superoxide Dismutase, Vitamins C, E
- Hormones and other substances: Melatonin, Choline, Serotonin agents, Dopamine, NAC, Glutathione Peroxidase, Carotenoids

Source: Harlan Bieleley, MD,MS References 1-115.

References and Abstracts available by request.

Summary

1. About half the drugs used 20 years ago have drug-induced nutrient depletion.
2. Tobacco smoking and secondhand smoke exposure cause drug-induced nutrient depletion, by unwittingly depleting antioxidants, micronutrients, and other substances.
3. Replenishment of some of these depleted substances:
 - reduces morbidity & mortality.
 - Improves biomarkers.

Thank you for your kind attention.

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