AACT Herbal Dietary Supplement Section Abstracts January 2021

1. Liver injury associated with kratom, a popular opioid-like product: Experience from the U.S. drug induced liver injury network and a review of the literature. Ahmad J, Odin JA, Hayashi PH, Fontana RJ, Conjeevaram H, Avula B, Khan IA, Barnhart H, Vuppalanchi R, Navarro VJ; Drug-Induced Liver Injury Network.

Drug Alcohol Depend. 2021 Jan 1;218:108426. doi: 10.1016/j.drugalcdep.2020.108426. Epub 2020 Nov 23.

BACKGROUND: Kratom is a botanical product used as an opium substitute with abuse potential. METHODS: Assessment of suspected cases of kratom-induced liver injury in a prospective US cohort. RESULTS: Eleven cases of liver injury attributed to kratom were id entified with a recent increase. The majority were male with median age 40 years. All were symptomatic and developed jaundice with a median latency of 14 days. The liver injury pattern was variable, most required hospitalization and all eventually recovered. Biochemical analysis revealed active kratom ingredients. CONCLUSION: Kratom can cause severe liver injury with jaundice.

DOI: 10.1016/j.drugalcdep.2020.108426
PMID: 33257199

2. When thyroid labs do not add up, physicians should ask patients about biotin supplements. Lundin MS, Alratroot A, Abu Rous F, Aldasouqi S.

BMJ Case Rep. 2020 Mar 31;13(3):e231337. doi: 10.1136/bcr-2019-231337.

A 69-year-old woman with a remote history of Graves' disease treated with radioactive iodine ablation, who was maintained on a stable dose of levothyroxine for 15 years, presented with abnormal and fluctuating thyroid function tests which were confusing. After extensive evaluation, no diagnosis could be made, and it became difficult to optimise the levothyroxine dose, until we became aware of the recently recognised biotin-induced lab interference. It was then noticed that her medication list included biotin 10 mg two times per day. After holding the biotin and repeating the thyroid function tests, the labs made more sense, and the patient was easily made euthyroid with appropriate dose adjustment. We also investigated our own laboratory, and identified the thyroid labs that are performed with biotin-containing assays and developed strategies to increase the awareness about this lab artefact in our clinics.

DOI: 10.1136/bcr-2019-231337
PMCID: PMC7167425
PMID: 32234851 [Indexed for MEDLINE]

3. Metabolic disturbance in Korean red ginseng-induced "Shanghuo" (excessive heat). Zhao T, Yang Z, Mei X, Xu L, Fan Y.

J Ethnopharmacol. 2020 May 10;253:112604. doi: 10.1016/j.jep.2020.112604. Epub 2020 Jan 21.

ETHNOPHARMACOLOGICAL RELEVANCE: Northeast China is one of the Korean Red Ginseng (KRG) producing areas. As a health care product, KRG is popular amongst Chinese people. However, few studies have reported the side effects of overusing KRG. AIM OF THE STUDY: The main purpose of this study is to explore the mechanism of Korean Red Ginseng (KRG)-induced "Shanghuo" (excessive heat). MATERIALS AND METHODS: After the baseline characteristics were evaluated, 30 healthy volunteers were administrated with 3g of KRG for 10-16 days and diagnosed with "Shanghuo". The volunteers prior to the administration of KRG were considered as the control group. The volunteers after being diagnosed with "Shanghuo" (excessive heat) were considered as

"Shanghuo" group. The two groups were assessed by the tests of serum metabolic products, Succinate Dehydrogenase (SDH) activity, and mRNA expressions of adenosine monophosphate (AMP)-activated protein kinase (AMPK), PPARG Coactivator 1 Alpha (PGC-1α) and Nuclear Respiratory Factor 1 (NRF1). RESULTS: Most of the serum metabolites in the "Shanghuo" group were increased compared with the control group, from high to low including serine, valine, heptacosane, xylose, glycerol 1-monostearate, d-glucose, 3-pyridinol, glyceryl palmitate, urea, phosphoric acid, glycerol, stearic acid, palmitic acid, cyclohexaneacetic acid. Only cholesterol was significantly reduced, The SDH activity and the mRNA expressions of AMPK, PGC-1α and NRF1 were significantly increased in the "Shanghuo" group. CONCLUSIONS: Overconsumption of KRG could induce "Shanghuo", which has a close relationship with an accelerated TCA cycle and the increased AMPK activity.

DOI: 10.1016/j.jep.2020.112604
PMID: 31972326 [Indexed for MEDLINE]

4. Henna-induced Hemolysis and Acute Kidney Injury in an 85-year-old Man; a Case Report. Asgari S, Esfandbod M, Haghshomar M.

Arch Acad Emerg Med. 2020 Oct 14;8(1):e82. eCollection 2020.

Henna is a commonly used traditional cosmetic agent, which also holds medical potentials and is used to treat skin lesions including seborrheic dermatitis or fungal infections and also has possible anti-inflammatory effects. It contains lawsone (2-hydroxy-1,4-naphthoquinone) and, therefore, has the potential to induce oxidative hemolysis. Henna-induced hemolysis has been previously reported in children with Glucose 6-Phosphate Dehydrogenase Deficiency. Here, we report an 85-year-old man who developed hemolytic anemia and acute kidney injury following oral consumption of henna to help his dyspnea. He was treated with hydration, bicarbonate, and dexamethasone. Over the course of hospitalization, the patient developed ventilator-associated pneumonia and was treated with antibiotic. He was discharged after one month. This finding is of high importance due to common use of henna, especially among people with false beliefs regarding traditional and herbal medicine, and highlights the role of a full history taking.

PMCID: PMC7682624
PMID: 33244517

5. Weight loss supplement causing acute heart block in a child. O'Brien DR, Szymczuk V, Albaro CA.

Cardiol Young. 2020 Jan;30(1):131-133. doi: 10.1017/S104795111900283X. Epub 2020 Jan 6.

A 16-year-old male was admitted to the paediatric ICU with acute onset of vomiting, somnolence, and chest pain, and electrocardiogram showing 2nd degree heart block after ingesting an Aleurites moluccana (Candlenut) seed as a herbal weight loss supplement. Electrocardiogram showed progressively worsening heart block with down-sloping of the ST segments, resembling digoxin toxicity. After 2 days of ICU observation, his symptoms began to improve and eventually resolved. The side effects of herbal supplements are often unknown but by analysing cases such as these, physicians can develop a better understanding of these substances to help guide management.

DOI: 10.1017/S104795111900283X
PMID: 31902376 [Indexed for MEDLINE]

6. [Peripheral neuropathy with hypervitaminosis B6 caused by self-medication]. [Article in French] Malet L, Dayot L, Moussy M, de la Gastine B, Goutelle S.

Rev Med Interne. 2020 Feb;41(2):126-129. doi: 10.1016/j.revmed.2019.11.003. Epub 2019 Nov 30.

INTRODUCTION: Vitamin B6 is contained in a number of over-the-counter drugs and vitamin supplements. It may cause severe neurological troubles in case of overdosage. CASE REPORT: We report the case of a 92-year-old women with gait disorders. A diagnosis of peripheral neuropathy with both motor and sensitive deficits was established and investigated. Blood level of vitamin B6 was measured to investigate a potential deficiency. Unexpectedly, the results showed hypervitaminosis B6, which appears to be due to self-administration of an over-the-counter drug containing vitamin B6. Discontinuation of this drug was associated with decrease in vitamin B6 level as well as gait improvement. We also discuss the toxicity of vitamin B6. CONCLUSION: Hypervitaminosis B6 remains a possible cause of peripheral neuropathy and it may be caused by self-administration of over-the-counter vitamin-containing drugs.

DOI: 10.1016/j.revmed.2019.11.003
PMID: 31796339 [Indexed for MEDLINE]

7. CYP2C9-mediated warfarin and milk thistle interaction. Lash DB, Ward S.

J Clin Pharm Ther. 2020 Apr;45(2):368-369. doi: 10.1111/jcpt.13064. Epub 2019 Oct 21.

WHAT IS KNOWN AND OBJECTIVE: In vitro studies suggest a CYP2C9-mediated interaction between milk thistle and warfarin, but there has been no in vivo case report on this interaction. CASE DESCRIPTION: A White Hispanic man in his 30s was well controlled on warfarin therapy for mitral valve replacement. His INR increased from 2.64 to 4.12, and he denied changes to his medications and diet but noted starting a 'liver cleanse' supplement which contained milk thistle (200 mg). After stopping the supplement his INR normalized, and he remains on the same warfarin dose. WHAT IS NEW AND CONCLUSION: This is the first in vivo report of an interaction between milk thistle and warfarin.

DOI: 10.1111/jcpt.13064
PMID: 31633199 [Indexed for MEDLINE]

8. Acetyl-l-Carnitine and New-Onset Psychosis During the COVID-19 Pandemic. Dhir S, Khalid Z, Salcedo J, Shanbour A.

Prim Care Companion CNS Disord. 2020 Dec 3;22(6):20l02804. doi: 10.4088/PCC.20l02804.

No abstract.

DOI: 10.4088/PCC.20l02804
PMID: 33271642 [Indexed for MEDLINE]

9. Herbal supplement-induced acute pancreatitis: An unfamiliar culprit. Weissman S, Amrutiya V, Saleem S, Mehta TI, Aziz M, Lo A, Elias S, Sotiriadis J, Takakura K, Pandol SJ, Tabibian JH.

Pancreatology. 2020 Mar;20(2):297-299. doi: 10.1016/j.pan.2019.12.009. Epub 2019 Dec 13.

No abstract: first paragraph communication;
Acute pancreatitis accounts for over 100,000 hospitalizations per annum in the United States (U.S.), representing the 3rd most common principal diagnosis in U.S. hospitals. Over the last few decades, drug-induced pancreatitis has become increasingly recognized as an etiology of acute pancreatitis, though only a minority of cases (0.1%e2%) are

estimated to be associated with medication usage. A rare subset of drug-induced pancreatitis, are cases secondary to herbal, homeopathic, and other alternative medicine products. We present the case of a patient who developed acute pancreatitis due to "Immune factors" -a herbal supplement which contains two species of Echinacea (purpurea and angustifolia) as well as Goldenseal (Hydrastis canadensis) and extracts of Shiitake, Maitake, and Reishi mushrooms.

DOI: 10.1016/j.pan.2019.12.009
PMID: 31864812 [Indexed for MEDLINE]

10. (Not really HDS but...)
Amyotrophic Lateral Sclerosis After Exposure to Manganese from Traditional Medicine Procedures in Kenya. Roos E, Wärmländer SKTS, Meyer J, Sholts SB, Jarvet J, Gräslund A, Roos PM.

Biol Trace Elem Res. 2020 Nov 23. doi: 10.1007/s12011-020-02501-4. Online ahead of print.

Amyotrophic lateral sclerosis (ALS) is a fatal neurodegenerative disease characterized by motor neuron loss and widespread muscular atrophy. Despite intensive investigations on genetic and environmental factors, the cause of ALS remains unknown. Recent data suggest a role for metal exposures in ALS causation. In this study we present a patient who developed ALS after a traditional medical procedure in Kenya. The procedure involved insertion of a black metal powder into several subcutaneous cuts in the lower back. Four months later, general muscle weakness developed. Clinical and electrophysiological examinations detected widespread denervation consistent with ALS. The patient died from respiratory failure less than a year after the procedure. Scanning electron microscopy and X-ray diffraction analyses identified the black powder as potassium permanganate (KMnO4). A causative relationship between the systemic exposure to KMnO4 and ALS development can be suspected, especially as manganese is a well-known neurotoxicant previously found to be elevated in cerebrospinal fluid from ALS patients. Manganese neurotoxicity and exposure routes conveying this toxicity deserve further attention.

DOI: 10.1007/s12011-020-02501-4
PMID: 33230634

11. Dietary Supplement Use During Chemotherapy and Survival Outcomes of Patients With Breast Cancer Enrolled in a Cooperative Group Clinical Trial (SWOG S0221). Ambrosone CB, Zirpoli GR, Hutson A, McCann WE, McCann SE, Barlow WE, Kelly KM, Cannioto R, Sucheston-Campbell LE, Hershman DL, Unger JM, Moore HCF, Stewart JA, Isaacs C, Hobday TJ, Salim M, Hortobagyi GN, Gralow JR, Budd GT, Albain KS.

J Clin Oncol. 2020 Mar 10;38(8):804-814. doi: 10.1200/JCO.19.01203. Epub 2019 Dec 19.

PURPOSE: Despite reported widespread use of dietary supplements during cancer treatment, few empirical data with regard to their safety or efficacy exist. Because of concerns that some supplements, particularly antioxidants, could reduce the cytotoxicity of chemotherapy, we conducted a prospective study ancillary to a therapeutic trial to evaluate associations between supplement use and breast cancer outcomes. METHODS: Patients with breast cancer randomly assigned to an intergroup metronomic trial of cyclophosphamide, doxorubicin, and paclitaxel were queried on their use of supplements at registration and during treatment (n =1,134). Cox proportional hazards regression adjusting for clinical and lifestyle variables was used. Recurrence and survival were indexed at 6 months after enrollment using a landmark approach. RESULTS: There were indications that use of any antioxidant supplement (vitamins A, C, and E; carotenoids; coenzyme Q10) both before and during treatment was associated with an increased hazard of recurrence (adjusted hazard ratio [adjHR], 1.41; 95% CI, 0.98 to 2.04; P = .06) and, to a lesser extent, death (adjHR, 1.40; 95% CI, 0.90 to 2.18; P = .14). Relationships with individual antioxidants were weaker perhaps because of small numbers. For nonantioxidants, vitamin B12 use both before and during chemotherapy was

significantly associated with poorer disease-free survival (adjHR, 1.83; 95% CI, 1.15 to 2.92; P < .01) and overall survival (adjHR, 2.04; 95% CI, 1.22 to 3.40; P < .01). Use of iron during chemotherapy was significantly associated with recurrence (adjHR, 1.79; 95% CI, 1.20 to 2.67; P < .01) as was use both before and during treatment (adjHR, 1.91; 95% CI, 0.98 to 3.70; P = .06). Results were similar for overall survival. Multivitamin use was not associated with survival outcomes. CONCLUSION: Associations between survival outcomes and use of antioxidant and other dietary supplements both before and during chemotherapy are consistent with recommendations for caution among patients when considering the use of supplements, other than a multivitamin, during chemotherapy.

DOI: 10.1200/JCO.19.01203
PMCID: PMC7062457
PMID: 31855498 [Indexed for MEDLINE]

12. Use of Dietary Supplements in Living Kidney Donors: A Critical Review. Leonberg-Yoo AK, Johnson D, Persun N, Bahrainwala J, Reese PP, Naji A, Trofe-Clark J.

Am J Kidney Dis. 2020 Dec;76(6):851-860. doi: 10.1053/j.ajkd.2020.03.030. Epub 2020 Jul 10.

Dietary supplement use is high among US adults, with the intention by users to promote overall health and wellness. Kidney donors, who are selected based on their overall good health and wellness, can have high utilization rates of dietary supplements. We provide a framework for the evaluation of living kidney donors and use of dietary supplements. In this review, dietary supplements will include any orally administered dietary or complementary nutritional products, but excluding micronutrients (vitamins and minerals), food, and cannabis. Use of dietary supplements can influence metabolic parameters that mask future risk for chronic illness such as diabetes and hypertension. Dietary supplements can also alter bleeding risk, anesthesia and analgesic efficacy, and safety in a perioperative period. Finally, postdonation monitoring of kidney function and risk for supplement-related nephrotoxicity should be part of a kidney donor educational process. For practitioners evaluating a potential kidney donor, we provide a list of the most commonly used herbal supplements and the effects on evaluation in a predonation, perioperative donation, and postoperative donation phase. Finally, we provide recommendations for best practices for integration into a comprehensive care plan for kidney donors during all stages of evaluation. We recommend avoidance of dietary supplements in a kidney donor population, although there is a paucity of data that identifies true harm. Rather, associations, known mechanisms of action, and common sense suggest that we avoid use in this population.

DOI: 10.1053/j.ajkd.2020.03.030
PMID: 32659245 [Indexed for MEDLINE]

13. Nonvitamin, Nonmineral Dietary Supplement Use in Individuals with Rheumatoid Arthritis. Skiba MB, Hopkins LL, Hopkins AL, Billheimer D, Funk JL.

J Nutr. 2020 Sep 1;150(9):2451-2459. doi: 10.1093/jn/nxaa197.

BACKGROUND: Over-the-counter, natural product-based (nonvitamin, nonmineral) dietary supplement (NVNM DS) use is common in adults with rheumatoid arthritis (RA), a group at risk for drug-DS interactions, due to polypharmacy, but this use is underreported to health care providers. Recent dramatic changes in US sales of specific NVNM DS suggest that the prevalence and types of NVNM DS used in RA populations may also have shifted. OBJECTIVES: A study was undertaken to identify current and past use of specific NVNM DS for RA disease treatment and to examine associations between use of NVNM DS, RA pharmaceuticals, and/or vitamin or mineral (VM) DS. METHODS: We developed a survey instrument to capture current and ever use of specific NVNM DS, VM DS, and RA pharmaceuticals, with 696 subjects self-reporting an RA diagnosis recruited online or in clinic for

survey participation. Analyses were limited to 611 subjects reporting RA diagnosis after age 18 y and treatment with specific RA pharmaceuticals. RESULTS: Most participants reported DS use, with current usage prevalence 49.6% (n = 303), 83.5% (n = 510), or 87.6% (n = 535) for NVNM, VM, or any DS, respectively. While not having appeared in previous RA surveys, turmeric and ginger were among the top 3 NVNM DS in current use, along with fish oil/ω-3 (n-3) PUFA. Concurrent NVNM DS use was reported by 48.2% (n = 243) of participants currently using RA pharmaceuticals (n = 504) and was more common in those using disease modifying antirheumatic drugs only (no biologics). Most methotrexate users (83%) reported concurrent folate supplementation, with one-third also using turmeric, which is notable because methotrexate and turmeric have been associated with hepatotoxicity. CONCLUSION: Individuals with RA commonly use NVNM DS in combination with RA pharmaceuticals, including a previously undocumented but popular use of turmeric or ginger supplements with an unclear risk/benefit ratio.

DOI: 10.1093/jn/nxaa197
PMCID: PMC7540062
PMID: 32805045 [Indexed for MEDLINE]

14. Dietary and herbal supplements use among patients hospitalized in internal medicine departments. Ben-Sasson M, Levy I, Ben-Arye E, Attias S, Schiff E.

Complement Ther Med. 2020 May;50:102345. doi: 10.1016/j.ctim.2020.102345. Epub 2020 Feb 12.

OBJECTIVES: To assess consumption of dietary and herbal supplements (DHS) among patients in internal medicine departments and determine whether such use is documented in their medical files. METHODS: 267 patients from three internal medicine departments of an academic medical center in Haifa, Israel were assessed prospectively with questionnaires about their DHS use in the month preceding hospitalization. DHS were categorized into vitamins & minerals, herbal supplements and others. Further data was then collected from patients' medical records on socio-demographic and medical characteristics, as well as documentation of DHS use. RESULTS: 123 patients (50.6 %) used DHS on a daily basis. Most of them (53.7 %) were using more than one DHS. DHS use was more prevalent in older (OR=1.02 [1.001-1.036], p=0.034) and educated (OR=0.482 [0.252-0.923], p=0.028) patients. Vitamins & minerals were used mainly to enhance vitality and address laboratory abnormalities, whereas herbal supplements were used mainly for gastrointestinal problems (p<0.001). DHS use was reported to the physicians by 42 % of the patients, mostly at the patients' initiative [92 (82.1 %), p<0.001)]. Vitamins and minerals were the most reported category of DHS (94 (57.3 %), p<0.001). The use of DHS was reported to physicians for 112 DHS (41.8 %) but only 32 DHS (11.9 %) were documented in their medical files. The documentation of vitamins and minerals was significantly higher compared to herbal supplements documentation (29 (17.7 %) & 3 (2.9 %) respectively, P<0.001). CONCLUSIONS: DHS are commonly used by patients hospitalized in the internal medicine departments. Many patients do not report such use to the physicians, and more strikingly, physicians do not document DHS use in patient medical files. This communication gap may have serious medico-legal ramifications due to DHS side effects and DHS interactions with other DHS and with conventional drugs.

DOI: 10.1016/j.ctim.2020.102345
PMID: 32444039 [Indexed for MEDLINE]

15. Evaluation of Heavy Metal and Microbial Contamination in Green Tea and Herbal Tea Used for Weight Loss in the Palestinian Market. Abualhasan MN, Nidal Jaradat, Hawash M, Khayat R, Khatatbeh E, Ehmidan M, Al-Atrash M.

Evid Based Complement Alternat Med. 2020 Nov 10;2020:7631562. doi: 10.1155/2020/7631562. eCollection 2020.

The use of green tea and herbal tea for weight loss is increasing worldwide owing to the rising rates of obesity. There are concerns about the safety and quality of these herbal products owing to their increased consumption worldwide. In this study, we evaluated randomly collected samples of green tea and herbal tea and tested them for heavy metal and microbial contamination. Eighteen samples of green tea or herbal tea of widely used brands in Palestine were tested for heavy metal and microbial contamination. The results showed that 7 of the samples had toxic heavy metals such as chromium (Cr) and lead (Pb), and their concentrations were above the allowable limits set by the World Health Organization (WHO). Moreover, 6 of the samples that were tested had microbial contamination with high total aerobic microbial count (TAMC) and total yeast and mold count (TYMC). This could be due to improper handling and storage conditions of these herbal products. This study is the first of its kind in Palestine, and its results are forewarning to all the responsible authorities, including the Ministry of Health (MoH), to take immediate corrective actions such as quality control testing, auditing, and registration of marketed tea products.

DOI: 10.1155/2020/7631562
PMCID: PMC7707972
PMID: 33299455

16. Crowdfunding for complementary and alternative medicine: What are cancer patients seeking? Snyder J, Zenone M, Caulfield T.

PLoS One. 2020 Nov 20;15(11):e0242048. doi: 10.1371/journal.pone.0242048. eCollection 2020.

BACKGROUND: Complementary and alternative medicine (CAM) is increasingly being integrated into conventional medical care for cancer, used to counter the side effects of conventional cancer treatment, and offered as an alternative to conventional cancer care. Our aim is to gain a broader understanding of trends in CAM interventions for cancer and crowdfunding campaigns for these interventions. METHODS: GoFundMe campaigns fundraising for CAM were retrieved through a database of crowdfunding campaign data. Search terms were drawn from two National Institutes of Health lists of CAM cancer interventions and a previous study. Campaigns were excluded that did not match these or related search terms or were initiated outside of June 4th, 2018 to June 4th, 2019. RESULTS: 1,396 campaigns were identified from the US (n = 1,037, 73.9%), Canada (n = 165, 11.8%), and the UK (n = 107, 7.7%). Most common cancer types were breast (n = 344, 24.6%), colorectal (n = 131, 9.4%), and brain (n = 98, 7.0%). CAM interventions sought included supplements (n = 422, 30.2%), better nutrition (n = 293, 21.0%), high dose vitamin C (n = 276, 19.8%), naturopathy (n = 226, 16.2%), and cannabis products (n = 211, 15.1%). Mexico (n = 198, 41.9%), and the US (n = 169, 35.7%) were the most common treatment destinations. CONCLUSIONS: These findings confirm active and ongoing interest in using crowdfunding platforms to finance CAM cancer interventions. They confirm previous findings that CAM users with cancer tend to have late stage cancers, cancers with high mortality rates, and specific diseases such as breast cancer. These findings can inform targeted responses where facilities engage in misleading marketing practices and the efficacy of interventions is unproven.

DOI: 10.1371/journal.pone.0242048
PMCID: PMC7679016
PMID: 33216790 [Indexed for MEDLINE]

17. Acne related to dietary supplements. Zamil DH, Perez-Sanchez A, Katta R.

Dermatol Online J. 2020 Aug 15;26(8):13030/qt9rp7t2p2.

Multiple prescription medications may cause or aggravate acne. A number of dietary supplements have also been linked to acne, including those containing vitamins B6/B12, iodine, and whey, as well as "muscle building supplements" that may be contaminated with anabolic-androgenic steroids (AAS). Acne linked to dietary supplements generally resolves following supplement discontinuation. Lesions associated with high-dose vitamin B6 and B12 supplements have been described as monomorphic and although pathogenesis is unknown, a number of hypotheses have been proposed. Iodine-related acne may be related to the use of kelp supplements and has been reported as monomorphic, inflammatory pustules on the face and upper trunk. Whey protein supplements, derived from milk and used for bodybuilding, are associated with papulonodular acne involving the trunk and sometimes the face. Finally, AAS-induced acne has been described as acne fulminans, acne conglobata, and acne papulopustulosa. With studies indicating that about half of US adults report using dietary supplements, it is important that dermatologists directly ask acne patients about their supplement use and educate them on the potential risks of even seemingly innocuous dietary
supplements.

PMID: 32941710 [Indexed for MEDLINE]