



Therapy Descriptions:

Anit-Inflammatory Supplements:

- **Resveratrol:** Resveratrol is a plant phytochemical (flavonoid) that has remarkable biological properties. Resveratrol has anti-inflammatory, antiviral (SARS-CoV-2), antioxidant, and anticoagulant properties and has beneficial effects on the microbiome. Resveratrol should therefore be taken during fasting and not with a meal. The safety of these phytochemicals has not been determined in pregnancy and they should therefore be avoided.
- **Quercetin:** Quercetin, a plant flavonoid with many of the biological properties of resveratrol, acts synergistically with resveratrol and increases the bioavailability of resveratrol. Due to the possible drug interaction between quercetin and ivermectin these drugs should not be taken simultaneously (i.e., should be staggered morning and night). The use of quercetin has rarely been associated with hypothyroidism. The clinical impact of this association may be limited to those individuals with pre-existent thyroid disease or those with subclinical thyroidism. Quercetin should be used with caution in patients with hypothyroidism and TSH levels should be monitored.
- **Methylene blue:** Low Dose Methylene Blue (LDMB) is a therapeutic option in patients with brain fog and other neurological symptoms; this can be combined with transcranial photobiomodulation. Methylene blue (MB) has several biological properties that may be potentially beneficial in patients. MB induces mitophagy (mitochondrial autophagy) and has anti-inflammatory, antioxidant, neuroprotective, and antiviral properties. LDMB will cause your urine to be blue or blue green. Some patients may experience a Herx reaction. A Herx reaction may cause fatigue, nausea, headache, or muscle pain. If you experience a Herx reaction, stop the protocol for 48 hours and then resume slowly. DO NOT take MB if you are pregnant or breastfeeding.
- **Ellagic Acid:** Ellagic Acid is a powerful polyphenol that has been associated with a long list of impressive health benefits. Some studies have shown that ellagic acid may decrease cancer cell growth, alleviate inflammation, and protect brain function. Some animal and human studies suggest that it may also be useful for the treatment and prevention of conditions like type 2 diabetes, cancer, and brain diseases like Alzheimer's. Ellagic acid may inhibit cytochrome P450s, a group of enzymes involved in the metabolism of many types of medications. As such, if you're taking any medications that are metabolized by these enzymes, which includes many types of statins, antipsychotics, and blood thinners, you should talk with your doctor before using ellagic acid supplements.
- **N-Acetyl Cysteine:** NAC is the precursor of reduced Glutathione, a potent anti-inflammatory. Based on a broad range of antioxidant, anti-inflammatory, and immunomodulating mechanisms, the oral administration of NAC likely plays an adjuvant role in the treatment of the patient with inflammation.
- **Nigella Sativa:** Nigella sativa is a small shrub native to Southern Europe, North Africa, and Southeast Asia. The seeds and oil of Nigella sativa have been used as a medical agent for thousands of years. The most important active component is thymohydroquinone. Nigella sativa has antibacterial, antifungal, antiviral (SARS-CoV-2), anti-inflammatory, antioxidant, and immunomodulatory properties. It should be noted that thymohydroquinone decreases the absorption of cyclosporine and phenytoin. Patients taking these drugs should, therefore, avoid taking Nigella sativa. Furthermore, two cases of serotonin syndrome have been reported in

patients taking *Nigella sativa* who underwent general anesthesia (probable interaction with opiates).

- **Spermidine:** Spermidine is a naturally occurring polyamine that, like resveratrol, has anti-inflammatory and antioxidant properties. It preserves mitochondrial function and has been shown to reduce cardiovascular disease and all-cause mortality and prolong lifespan. Furthermore, like resveratrol, spermidine promotes autophagy. Cancer cells are reported to have dysregulated polyamine metabolism and spermidine is therefore best avoided in patients with a known malignancy. In addition, spermidine should be avoided in men over the age of 60 who are at high risk of an ischemic stroke.
- **Bromelain:** Bromelain is a group of enzymes found in the fruit and stem of the pineapple plant. Pineapple is native to the Americas but is now grown throughout the world in tropical and subtropical regions. Historically, natives of Central and South America used pineapple for a variety of ailments, such as digestive disorders. Bromelain is promoted as a dietary supplement for reducing pain and swelling, especially of the nose and sinuses, gums, and other body parts after surgery or injury. It is also promoted for osteoarthritis, cancer, digestive problems, and muscle soreness. Topical bromelain is promoted for burns. Few side effects of bromelain have been reported in studies. The most commonly reported side effects have been stomach upset and diarrhea. Allergic reactions may occur in individuals who are sensitive or allergic to pineapples or who have other allergies. Little is known about whether it's safe to use bromelain during pregnancy or while breastfeeding. Bromelain may interact with some medicines, such as the antibiotic amoxicillin. If you take medicine, talk to your health care provider before taking bromelain.
- **Curcumin:** Curcumin has received worldwide attention for its multiple health benefits, which appear to act primarily through its antioxidant and anti-inflammatory mechanisms. These benefits are best achieved when curcumin is combined with agents such as piperine, which increase its bioavailability significantly. Research suggests that curcumin can help in the management of oxidative and inflammatory conditions, metabolic syndrome, arthritis, anxiety, and hyperlipidemia. It may also help in the management of exercise-induced inflammation and muscle soreness, thus enhancing recovery and subsequent performance in active people. Curcumin has a long-established safety record. Some have experienced diarrhea, headache, rash, and yellow stool, and an increase in serum alkaline phosphatase and lactate dehydrogenase contents.
- **Melatonin:** Melatonin has anti-inflammatory and antioxidant properties and is a powerful regulator of mitochondrial function. Patients who are slow metabolizers may have very unpleasant and vivid dreams with higher doses.
- **Nattokinase:** Nattokinase has potent fibrinolytic, antithrombotic, and antiplatelet activity. Nattokinase has antihypertensive, anti-atherosclerotic, lipid-lowering, and neuroprotective actions. Of particular relevance to patients with spike-related clotting, nattokinase causes the proteolytic cleavage of both spike protein and amyloid proteins. In a randomized study, NK proved to be more effective than statins (simvastatin) in reducing carotid artery atherosclerosis. Proceed with caution if you are on other blood thinners, please discuss with your provider to determine if this is right for you.

Prescriptions:

- **Ivermectin:** Ivermectin, a semisynthetic derivative of avermectin B1 is a broad-spectrum antimicrobial drug with anti-helminthic, anti-bacterial, anti-viral, anti-inflammatory and anti-cancer properties.¹ In addition, Ivermectin displays anti-diabetic activities by reducing blood glucose and cholesterol levels, and also by improving insulin sensitivity. Proceed with caution if taking barbiturates (such as phenobarbital, butalbital), benzodiazepines (such as clonazepam, lorazepam), sodium oxybate (GHB), valproic acid.
- **Hydroxychloroquine:** Hydroxychloroquine treats autoimmune conditions, such as rheumatoid arthritis and lupus. It works by slowing down an overactive immune system. It may also be used

to prevent and treat malaria. Let your provider know if you have diabetes, eye disease, vision problems, G6PD deficiency, heart disease, history of irregular heartbeat, if you often drink alcohol, kidney disease, liver disease, Porphyria, Psoriasis, an unusual or allergic reaction to chloroquine, hydroxychloroquine, other medications, foods, dyes, or preservatives, pregnant or trying to get pregnant or breast-feeding. Side effects may include allergic reactions—skin rash, itching, hives, swelling of the face, lips, tongue, or throat, Aplastic anemia—unusual weakness or fatigue, dizziness, headache, trouble breathing, increased bleeding or bruising, change in vision, heart rhythm changes—fast or irregular heartbeat, dizziness, feeling faint or lightheaded, chest pain, trouble breathing, Infection—fever, chills, cough, or sore throat, Low blood sugar (hypoglycemia)—tremors or shaking, anxiety, sweating, cold or clammy skin, confusion, dizziness, rapid heartbeat, muscle injury—unusual weakness or fatigue, muscle pain, dark yellow or brown urine, decrease in amount of urine, pain, tingling, or numbness in the hands or feet, rash, fever, and swollen lymph nodes, redness, blistering, peeling, or loosening of the skin, including inside the mouth, thoughts of suicide or self-harm, worsening mood, or feelings of depression, unusual bruising or bleeding, diarrhea, headache, nausea, stomach pain, vomiting

VITAMINS:

- **Magnesium L-Threonate:** Magnesium L-threonate has good bioavailability and will readily increase RBC magnesium levels. Magnesium taurate and magnesium L-threonate significantly increase magnesium levels in brain cells; hence they are used in the treatment of depression and Alzheimer's disease. High intakes of magnesium from dietary supplements and medications can cause diarrhea, nausea, and abdominal cramping.
- **Omega 3 EPA/DHA:** Omega-3 fatty acids have anti-inflammatory and cardioprotective effects and play an important role in the resolution of inflammation by inducing resolvins production. Furthermore, omega-3 fatty acids are believed to afford potent vasculoprotective effects, by improving endothelial function, limiting vascular inflammation, reducing thrombosis, and limiting reactive oxygen species production.
- **Vitamin C:** Vitamin C has important anti-inflammatory, antioxidant, and immune-enhancing properties, including increased synthesis of type I interferons, avoid in patients with a history of kidney stones. Oral Vitamin C helps promote the growth of protective bacterial populations in the microbiome.
- **Vitamin D:** Vitamin D has potent anti-inflammatory properties. It contributes to a reduction in pro-inflammatory mediators and an increase in anti-inflammatory cytokines. There is also evidence it decreases C-reactive protein (CRP) and improves selected hematologic indices.
- **Vitamin K2:** Vitamin K2 contributes to skin health and bone metabolism, promotes proper brain function and prevents heart-related diseases. Furthermore, vitamin K2 is important in the body's use of calcium to help build bones and inhibit blood vessel calcification. It has also been shown to have anti-inflammatory properties by exerting a protective effect against oxidative stress and generation of reactive oxygen species. People with G6PD deficiency should avoid vitamin K. People who take Warfarin (Coumadin) and people receiving dialysis for kidney disease should avoid large doses.
- **B Vitamins:** B vitamins, especially B6 and 12 decrease expression of pro-inflammatory cytokines and lead to a decrease of neuro-inflammation.
- **Zinc:** Zinc, a nutrient found throughout your body, helps your immune system and metabolism function. Zinc is also important to wound healing and your sense of taste and smell. With a varied diet, your body usually gets enough zinc. Food sources of zinc include chicken, red meat and fortified breakfast cereals. While zinc is regarded as safe in some people side effects can include indigestion, diarrhea, headache, nausea, vomiting.

***This is an informational summary document only it is not meant to be an exhaustive list of side effects or drug-drug interactions. Please review with your provider prior to taking any new medication/supplement.**