Iodine and Selenium for Heart Health

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The occurrence of iodine deficiency in cardiovascular disease is frequent. The thyroid hormone deficiency on cardiovascular function can be characterized with decreased myocardial contractility and increased peripheral vascular resistance as well as with the changes in lipid metabolism. A study done with 42 patients with cardiovascular disease were divided into 5 subgroups on the ground of the presence of hypertension, congestive heart failure, cardiomyopathy, coronary dysfunction and arrhythmia. When urine concentrations were tested, the most decreased urine iodine concentration was detected in the subgroups with arrhythmia and congestive heart failure. Three patients found an elevated TSH level and elevation in lipid metabolism (cholesterol, triglyceride) associated with all subgroups without arrhythmia. The researchers concluded that iodine supplementation might prevent the worsening effect of iodine deficiency on cardiovascular disease.[1]

According to Scientific American, physicians for decades have grappled with ways to block further tissue damage in patients who suffer heart attacks. They have tried everything from drugs to cell therapy—all with little luck. However, promising research indicates that a bio gel made from seaweed may have the healing powers that have thus far eluded them. Some of the principle healing agents in seaweed are magnesium, iodine, and selenium. Seaweeds with high amounts of iodine have exceptional value in the treatment of the heart but it is better and safer to use a liquid iodine, magnesium and selenium at high dosages.

Selenium is not only crucial when using iodine but it addresses directly the *Hun Hordes of Mercury* that are attacking heart tissues in massive amounts leading to cardiac arrest. What is not known by many is that mercury is a deadly cardiac poison whose best antidote is selenium – since they bind together making it easier for the body to remove the selenium-

mercury compound. Magnesium of course is the *Ultimate Heart Medicine*. Magnesium deficiency is directly correlated with most cardiovascular problems, including high blood pressure.

Clinical cardiovascular features of hypothyroidism include: bradycardia, reduced cardiac output, increased pericardial and pleural effusions, increased diastolic blood pressure and peripheral vasoconstriction. According to Dr. Stephen A. Hoption Cann, Department of Health Care and Epidemiology, University of British Columbia, **iodine deficiency can have deleterious effects on the cardiovascular system**, and correspondingly, that a higher iodine intake may benefit cardiovascular function.[2]

Differences in geographic iodine intake have been shown to be associated with the prevalence of hypothyroidism and hyperthyroidism. Both of these thyroid abnormalities have been shown to negatively affect cardiovascular function. Selenium, an important antioxidant in the thyroid and involved in the metabolism of iodine-containing thyroid hormones, may play an interactive role in the development of these thyroid irregularities, and in turn, cardiovascular disease.

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Dr. Michael Donaldson says, “Iodine stabilizes the heart rhythm, lowers serum cholesterol, lowers blood pressure, and is known to make the blood thinner as well, judging by longer clotting times seen by clinicians**.** Iodine is not only good for the cardiovascular system, it is vital. Sufficient iodine is needed for a stable rhythmic heartbeat. Iodine, directly or indirectly, can normalize serum cholesterol levels and normalize blood pressure. Iodine attaches to insulin receptors and improves glucose metabolism. Iodine and iodine-rich foods have long been used as a treatment for hypertension and cardiovascular disease; yet, modern randomized studies examining the effects of iodine on cardiovascular disease have not been carried out.”

Adequate iodine is necessary for proper thyroid function.
The heart is a target organ for thyroid hormones. Marked changes occur in cardiac function in patients with hypo or hyperthyroidism.

Endemic goiter was common in people and in domestic animals, particularly in the eastern part of Finland away from the sea. Studies in the 1950s revealed that the major dietary difference between eastern and western Finland was iodine. The risk of death from coronary heart disease was **3.5 times higher** for people with a goiter in Finland.[3]

“Thyroid hormone is an important regulator of cardiac function and cardiovascular hemodynamics. Triiodothyronine, T3, the physiologically active form of thyroid hormone, binds to nuclear receptor proteins and mediates the expression of several important cardiac genes, inducing transcription of the positively regulated genes including alpha-myosin heavy chain (MHC) and the sarcoplasmic reticulum calcium ATPase. Negatively regulated genes include beta-MHC and phospholamban, which are down regulated in the presence of normal serum levels of thyroid hormone. T3 mediated effects on the systemic vasculature include relaxation of vascular smooth muscle resulting in decreased arterial resistance and diastolic blood pressure. In hyperthyroidism, cardiac contractility and cardiac output are enhanced and systemic vascular resistance is decreased, while in hypothyroidism, the opposite is true. Patients with subclinical hypothyroidism manifest many of the same cardiovascular changes, but to a lesser degree than that which occurs in overt hypothyroidism. **Cardiac disease states are sometimes associated with the low T3 syndrome.** The phenotype of the failing heart resembles that of the hypothyroid heart, both in cardiac physiology and in gene expression. Changes in serum T(3) levels in patients with chronic congestive heart failure are caused by alterations in thyroid hormone metabolism suggesting that patients may benefit from T(3) replacement in this setting.”[4]

Iodine-containing thyroid hormones, thyroxine (T4) and triiodothyronine (T3) are important metabolic regulators of cardiovascular activity with the ability to exert action on cardiac myocytes, vascular smooth muscle, and endothelial cells.
Dr. Stephen. Hoption Cann

“Whole body sufficiency of iodine/iodide results in optimal cardiac functions,” writes Dr. Guy Abraham.[5] There is an epidemic of cardiac arrhythmias and atrial fibrillation in this country and Dr. Abraham is convinced that the medical iodine phobia has a great deal to do with this phenomenon. Adequate stores of iodine are necessary for a smooth heartbeat.[6]

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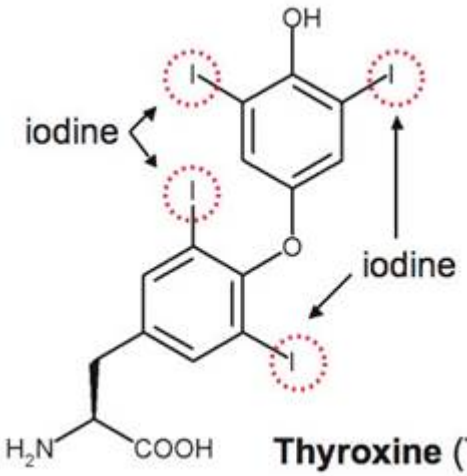
The thyroid hormone deficiency on cardiovascular function can be characterized with decreased myocardial contractility and increased peripheral vascular resistance as well as with the changes in lipid metabolism.[7] Dr. B. West says, “Iodine supplementation may be the missing link in a good percentage of heart arrhythmia cases, especially atrial fibrillation. The body needs adequate stores of iodine for the heart to beat smoothly. After close to a year now of using Iodine Fulfillment Therapy, I can attest to this fact. Most of the stubborn cases of cardiac arrhythmias and atrial fibrillation that we were unable to completely correct with our cardiac protocols have now been resolved with adequate supplies of iodine added to the protocol.”[8]

“Amazingly, while medicine shuns iodine therapy, their most popular anti-fibrillation drug, Amiodarone, actually is iodine in a more toxic, sustained-release form. This drug can produce a smooth heartbeat when the body has accumulated about 1,500 mgs of iodine—the exact amount of iodine retained by your body when iodine fulfillment is achieved by natural supplementation with Prolamine Iodine. Unfortunately, Amiodarone is an extremely toxic form of iodine used by the medical profession. The side effects are often too great (and even life threatening) for most people to endure long enough to achieve a normal heartbeat. In addition, once you stop this drug, your original problem returns. Iodine therapy, on the other hand, fulfills the body’s needs safely, then maintains the smooth heartbeat with a low-maintenance dose,” wrote Dr. West.

Dr. Donaldson reminds us of the selenium iodine connection saying, “Another factor in how much iodine can be safely used depends on other possible mineral deficiencies. Selenium is very important for thyroid function. Selenium is part of the anti-oxidant enzyme glutathione peroxidase. Glutathione peroxidase in the thyroid helps quench free radicals produced by the enzyme thyroid peroxidase (which functions to organify iodide as it enters the thyroid). If high levels of iodide are present in the thyroid without sufficient amounts of glutathione peroxidase it causes free-radical damage to the thyroid, leading to autoimmune thyroid disease. Several of the enzymes that convert T4 into T3 also require selenium. Studies in Zaire have found that supplementing selenium and iodine deficient children with just selenium had adverse effects on thyroid function.” [9]

Selenium is absolutely essential in the age of mercury toxicity for it is the perfect antidote for mercury exposure. It is literally raining mercury all over the world but especially in the northern hemisphere. And of course with the dentists poisoning a world of patients with mercury dental amalgam and the doctors with their mercury laden vaccines, selenium is more important than most of us can imagine. One must remember that mercury strips the body of selenium for the selenium stores get used up quickly because of its great affinity for mercury. Selenium deficiency impairs thyroid hormone metabolism by inhibiting the synthesis and activity of the iodothyronine deiodinases, which convert thyroxine (T4) to the more metabolically active 3,3′-5 triiodothyronine (T3). In rats, concurrent selenium and iodine

deficiency produces greater increases in thyroid weight and plasma thyrotrophin than iodine deficiency alone, indicating that a concurrent selenium deficiency could be a major determinant of the severity of iodine deficiency.[10]



Later studies showed that serum T4 was maintained at control levels when both dietary iodine and selenium were low, but not when iodine alone, or selenium alone, was low. Activity of thyroidal GSH-Px (erythrocyte glutathione peroxidase**)** was lowest in rats fed a diet containing high iodine and low selenium. The results suggested that high iodine intake, when selenium is deficient, may permit thyroid tissue damage as a result of low thyroidal GSH-Px activity during thyroid stimulation. A moderately low selenium intake normalized circulating T4 concentration in the presence of iodine deficiency. [11]

Adequate selenium nutritional status may help protect against some of the neurological effects of iodine deficiency. Researchers involved in the Supplementation en Vitamines et Mineraux AntioXydants (SU.VI.MAX) study in France, which was designed to assess the effect of vitamin and mineral supplements on chronic disease risk, evaluated the relationship between goiter and selenium in a subset of this research population. Their findings suggest that selenium supplements may be protective against goiter.[12] Selenium (Se) in the form of selenocysteine is an essential component of the family of the detoxifying enzymes glutathione peroxidase (Gpx) and of the iodothyronine selenodeiodinases that catalyze the extrathyroidal production of tri-iodothyronine (T(3)). Thus, Se deficiency may seriously influence the generation of free radicals, the conversion of thyroxine (T(4)) to T(3) and a thyroidal autoimmune process.

Recent studies concluded that a positive effect of Se on thyroidal autoimmune process was shown[13] and indicated that high serum Se levels (>120 ug/l) may also influence the outcome of GD. (Graves disease). [14] A recent study testing the various dosages of selenium confirmed that doses greater than 100mcg of selenium (as L-selenomethionine) were required to maximize glutathione peroxidase activities in autoimmune thyroiditis.[15]

Selenium is also essential for the production of estrogen sulfotranserfase which is the enzyme which breaks down estrogen. A deficiency of selenium can thus lead to excessive amounts of estrogen, which may depress thyroid function, and also upset the progesterone-estrogen balance. Animal studies have shown that **the addition of selenium supplementation will alleviate the effects of excess iodine intake**.[16] Iodine and selenium deficiencies must both be resolved for iodine treatment to be effective.

Dr. John Young in Tampa Florida has been experimenting with a new process for reversing metabolic syndrome and Type 2 diabetes. Over the past seven years he claims to have a success rate of 80 percent with over 100 diabetes patients. Dr. Young uses a combination of alkaline protein and minerals with a form of iodine that he says reverses the process in diabetes patients in eight to 12 weeks.

Dr. George Flechas has found that iodine can reduce the need for insulin in diabetic patients, using 50 to 100 mg of iodine per day. Of 12 patients, six were able to completely come off their medications with random glucose readings below 100 mg/dl and an HbA1cless than 5.8 (normal), and the other six were able to reduce the amount and/or number of medications needed to control their diabetes.

Recommendations

I continue to recommend liquid forms of iodine and selenium. For iodine, there is Nascent Iodine for Iodine sensitive individuals and children and Lugol's for higher oral dosages and transdermal use. Moreover, for selenium I recommend Tung Oil, which is the only selenium safe for high dosages because it is bonded to a lipid.

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Hypothesis: Dietary Iodine Intake in the Etiology of Cardiovascular Disease

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[12] Selenium Fact Sheet: http://ods.od.nih.gov/factsheets/selenium.asp#h5

[13] L-selenomethionine substitution suppresses serum concentrations of thyroid peroxidase antibody (TPOAb) in patients with AIT, but suppression requires doses higher than 100 microg/day which is sufficient to maximize glutathione peroxidase activities.

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