Correction of Low Body Temperature with Iodine Supplementation

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Abstract

Ninety percent of patients seen at our clinic have subnormal temperatures, which may be correlated with iodine deficiency and may have five different causes as discussed in this paper.

Twenty-four patients who had consistent subnormal temperatures were treated with 1,500 mcg of iodine per day. Twelve subjects had thyroid hormone analysis; all were normal. Eleven of these 12 also had low urinary excretions of iodine. Fifteen of the 24 patients' temperatures returned to normal within one month. Low body temperature may indicate iodine deficiency and/or some other metabolic abnormality. When individuals have subnormal temperatures and do not have a palpable multinodular goiter, iodine supplementation is safe and may be metabolically beneficial.

Introduction

It is generally thought that normal morning oral temperature is 97.6° with an afternoon temperature of 98.6°F. Over the past several years we have noted that a vast majority of patients seen at our clinic for a variety of chronic pain problems routinely have a temperature below 97°, even in the late afternoon. On a brief visit to Canada, four friends ranging in age from 33 to 65 also had temperatures below "normal."

After noting these low temperatures, we undertook a pilot research project to evaluate the possibility that iodine supplementation might assist in raising temperatures to the normal range.

Research Methods

Twenty-four individuals with low oral temperatures recorded their temperatures early morning and late afternoon for several days or for one week. All had temperatures below 97.6° in the early morning and below 98.6° in the late afternoon.

Twelve of these individuals underwent lab studies of PBI 24-hour urinary iodine excretion, cholesterol, T3, T4, and TSH. All had normal blood thyroid chemistries and normal to slightly elevated cholesterol. Total urinary excretion of iodine was low, from 81 to 331 mcg/24 hours, with the exception of one at 849. Interestingly, his output dropped to 262 mcg/24 hours after one month of iodine supplementation. Eleven of the 12 patients tested had iodine excretion levels below the 1994 U.S. average iodine output of 336 ng/L, ranging from 38 to 288 ng/L, and 6 of the 12 had excretion levels below the 1998 U.S. average of 145 ng/L. Six of the 12 had initial elevated cholesterol levels of 201 to 267. PBI initially was near the lower limit of "normal" in 8 of the 12 (4.1 to 4.8). None had a palpably enlarged thyroid.

All 24 individuals then were given "Liquid Iodine" from Biotics Research, containing 75 mcg of iodine per drop. They were advised to take a single dose of 20 drops (1,500 mcg) per day for one month. The last week they measured temperatures daily.

Results

Fifteen of 24 patients (62%) had increases of temperature to normal levels after one month of iodine supplementation. In three additional patients, temperatures increased 0.4 degree, although not quite to normal. The urinary output of iodine increased significantly in 6 of the 12 subjects tested. PBIs increased in only two individuals (6.5 to 7 and 4.5 to 5.6). Cholesterol decreased 10% in one individual (240 to 216) and 13% in another (181 to 158). Otherwise there were no significant cholesterol changes. Several subjects reported significant increased cold tolerance,

increased energy, and two reported slight weight loss

Discussion

Iodine, an essential nutrient, is the major component of thyroid hormone T4 and T3. It is also involved in liver, pituitary, and muscle where specific thyroid hormone receptors regulate gene expression, and it is critical to developing the brain. Cretinism and fibrocystic breast disease are only two of many diseases influenced by deficient iodine intake.

Over 75 years ago pandemic goiter was brought under control by the introduction of iodized salt. But for at least 40 years physicians have recommended minimizing salt intake because of its presumed association with hypertension. A recent report of a greater than 50% decrease in median iodine excretion during the past 20 years raises some concern about current iodine consumption, especially considering the fact that 14.9% of women of child-bearing age had excretions considered to be in the deficient range. This is of particular concern since iodine deficiency in fetuses and infants leads to irreversible intellectual deficits.

Thyroid regulation of metabolism includes such diverse functions as metabolic rate, cholesterol metabolism, cold or heat tolerance, total feelings of energy, mental alertness, weight balance, and basal temperature.

Thyroid function and/or iodine uptake are adversely affected by high protein intake, chlorinated water, cruciferous vegetables, and radioactivity in the environment.

All of these factors have increased significantly in the 75 years since iodine deficiency was thought to be controlled by providing iodized salt. Unfortunately, even today about half of all table salt is not iodized.

From 1994 to 1998 median urinary iodine excretion in a comprehensive U.S. population survey decreased from 321 ng/L to 145 ng/L. This drop is reflected further by our 12 tested patients in whom 6 had excretion levels even below the current average of 145 ng/L and another five were still well below the 1994 average. The World Health Organization estimates that 750 million people world-wide suffer from goiter, 5.7 million are cretins, and about 2 million world wide are at risk for iodine deficient diseases.[1,2]

A number of factors could explain our finding of low body temperature. Certainly, the decreasing urinary output of iodine must be considered as one factor. To some extent, this may be partially the result of physicians' routine recommendation to limit salt intake.

Secondly, there has been a striking increase in dietary intake of broccoli and cauliflower. These cruciferous vegetables, as well as spinach, turnips, beets, rutabaga, kale, and cabbage, contain thio-oxazidone, which blocks iodine absorption. Most of them also contain thiocyanates, which additionally block thyroid uptake of iodine. Thiocyanate and perchlorate also inhibit transport of iodine.

Thirdly, the vast majority of Americans now drink chlorinated water. Chlorine inhibits absorption of iodine, and a metabolic form of chlorine, perchlorate, inhibits transport of iodine.

Fourthly, everyone on planet Earth has been exposed to marked increases in radioactivity in the past 50 years. It is conceivable that significant damage to thyroid glands is widespread, although we can survive with less than half a thyroid gland after surgery. However, is it possible that a thyroid gland inhibited by radiation may need even greater iodine stimulation to function? This radiation effect may be particularly compounded by high intake of cruciferous vegetables.

Fifth, high protein intake significantly blocks iodine absorption. Protein intake in America has increased steadily since the early part of this century. Dr. Broda Barnes emphasized this aspect of metabolism as a major cause of "subclinical hypothyroidism," a condition that he emphasized was diagnosed only with a basal metabolic rate (BMR). Clinical medicine long ago abandoned the BMR in favor of hormonal measurements. On the other hand, low average body temperature, as also emphasized by Barnes,[3] indicates at least some metabolic abnormality.

Wilson has also used low body temperature as a major finding in the syndrome he elucidated.[4] His use of superphysiologic doses of T3 has seemed to us risky, at best, and unwise, at least. But iodine supplementation carries relatively little risk. Individuals suffering from multinodular goiter or subclinical hypothyroidism have a slight risk of developing Graves' disease. Fifteen mg of iodine per day is required to

suppress radioactive iodine uptake. Saturated solution of potassium iodide (SSKI) contains 38 mg/drop and is still used in selected bronchial disorders. Lugol's solution, formerly used to treat simple goiter, contains 6 mg/drop. Iodized salt contains 750 mg/10 grains. Kelp tablets contain 150 mcg/tablet.

Since all 12 of the subjects tested for thyroid hormone analysis had blood levels well within the normal range, we can be reasonably certain there was no subclinical hyperthyroidism as defined by internists and endocrinologists today. Indeed subnormal temperatures may be adequate information to rule out incipient Graves' disease. Thus the only risk with large doses of iodine may be nodular goiter, which can be easily diagnosed by a competent physical examination.

Increases in body temperature and increased cold tolerance suggest some metabolic effect of increased iodine intake. Non-thyroglobulin mediated subclinical hypothyroidism or hypothalamic dysregulation are two possible explanations, which require much more sophisticated studies. Nevertheless, subnormal body temperature must represent some type of metabolic dysfunction. In nine individuals whose temperature did not return to normal, additional supplementation with the thyroxine foundation amino acid tyrosine at levels of 1,500 mg/day for one month failed to lead to any temperature improvements. One such patient who then took taurine supplements (1,000 mg) for sleep assistance had her temperature return to normal within two days. The cause or possible correlation of the subnormal temperature in the other 38% of our patients remains unknown.

References

1. Howell, J. G. (1998). Iodine nutrition in the United States. Trends and public health implications: iodine excretion data from National Health and Nutrition Examination Surveys I and III (1971-1974 and 1988-1994). J Clinical Endocrinology and Metabolism 83(10), 3401-08.

2. Dunn, J. T. (1998). What's happening to our iodine? [editorial]. J Clinical Endocrinology and Metabolism, 83(10), 3398-3400.

3. Barnes, B. O. (1942). Basal temperature versus basal metabolism. JAMA, 1072-74.

4. Wilson, E. D. (1991). Wilson's Syndrome– The Miracle of Feeling Well. Cornerstone Publishing Co.

CORRECTION

On page 57 of the article, *Why Matter Matters Massively,* published in *Frontier Perspectives*, 10(2), paragraph three and four should have read:

Nobody doubts that forms of life can be steered by manipulating their necessary condition, e.g. on the genetic level. But nothing is gained by believing that this knowledge of manipulability is already all the knowledge of what life is all about. The fact that it consists of dis-equilibrations shows in the other fact that the produced organisms regularly reject the influence again after a few generations. Nothing really durable can be achieved in this way. Life must exist out of itself.

In the complexifications beyond the basic symmetry, with every additional force introduced, the structure of material matter becomes more complex. At each one of these thresholds some further disequilibrium is introduced (by an additional force vector), which leads to a new form of equilibrium and its respective disequilibriablity. These processes induce the set of variations that lead in nucleosynthesis to the types of equilibria, called 'particles' and 'atoms', that are known in the Mendelejew table of chemical elements, their isotopes, etc. By their patterns of dis-and re-equilibriability these force structures entail the factual transmutational processuality that we know in chemistry. As long as the creation process not arise out of its basic law (absolute equilibrium of two mutually counterbalancing forces), material matter can be synthesized only in some sort of short-lived mimickry.