

Standard hypothyroidism treatment falling short

August 22 2018

What if the standard treatment for hypothyroidism—insufficient thyroid hormone—is inadequate in controlling some crucial aspects of the condition? That's the provocative question asked, and answered affirmatively with objective data, in a study led by a Rush researcher presented this week in *The Journal of Clinical Endocrinology & Metabolism*.

A research team headed by Elizabeth McAninch, MD, a assistant professor in the Division of Endocrinology and Metabolism, found higher [cholesterol](#) levels in the blood of hypothyroid patients treated with appropriate doses of levothyroxine (LT4)—a synthetic version of the human thyroid hormone that is the standard treatment for [hypothyroidism](#)—than in healthy control subjects. The statistically significant difference held both in terms of total cholesterol (TC) and serum low-density lipoprotein (LDL), the so-called "bad cholesterol," which increases the risk of [heart disease](#).

The new study is a meta-analysis of 99 previous studies. One-third of those were done with control groups, so the team assessed those separately.

'We have to re-evaluate our guidelines'

"It's very well established that untreated hypothyroidism causes your cholesterol level to be higher," McAninch said. The study "points us to

the conclusion that levothyroxine therapy may not truly be normalizing these people," who are using LT4 to replicate adequate thyroid function.

A number of rodent studies have already established the same thing. "Our data is consistent with the animal models," McAninch said. "We have to re-evaluate our guidelines" on the standard of care for hypothyroidism. McAninch is also calling for more research into other therapies.

The new study looks "specifically at objective metrics of thyroid hormones," McAninch said. She evaluated other telltale markers of hypothyroidism besides cholesterol, but due to the diversity of the studies, was not able to make conclusions about markers other than cholesterol. With studies that measured cognition, for example, "they all used different cognitive tests. It was difficult to compare them in a systematic way."

Patient complaints may be signs medication 'might not be doing the full job'

As many as one-fifth of hypothyroid patients complain of continuing symptoms associated with the condition, such as fatigue, weight gain and depression, even while they are taking LT4. However, these patients often feel that their residual complaints are being dismissed by their doctors, McAninch said.

"Maybe their subjective complaints are a sign that their thyroid hormone replacement regimen might not be doing the full job of a normally functioning thyroid gland. We should take these common patient remarks and design more research to further explore why this is happening," she said.

"Multiple studies have found that more hypothyroid people are on statins (to control cholesterol) and anti-depressants" than people with healthy thyroid function. This correlation further suggests that LT4 is may not be adequate in controlling these patients' condition.

In terms of elevated cholesterol, McAninch said, the important question is, what are the long-term implications for that person's health? If a patient gets hypothyroidism at 15 or 20 years of age, will that somewhat higher cholesterol level contribute to serious problems such as heart disease over the course of the ensuing decades?

Researchers sifted through thousands of studies

For the meta-analysis, McAninch's team started out with nearly 18,000 studies of hypothyroidism, but eliminated all but the final 99 for one reason or another. For example, some studies were done with animals, not humans, while others included pregnant women or [patients](#) with hypothyroidism that wasn't severe enough to require treatment.

More information: Elizabeth A McAninch et al, Systemic Thyroid Hormone Status During Levothyroxine Therapy In Hypothyroidism: A Systematic Review and Meta-Analysis, *The Journal of Clinical Endocrinology & Metabolism* (2018). [DOI: 10.1210/jc.2018-01361](https://doi.org/10.1210/jc.2018-01361)

Provided by Rush University Medical Center

Citation: Standard hypothyroidism treatment falling short (2018, August 22) retrieved 4 May 2024 from <https://medicalxpress.com/news/2018-08-standard-hypothyroidism-treatment-falling-short.html>

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