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Prof. Dr. rer. nat. Lutz Schomburg
Institut für Experimentelle Endokrinologie
Max Rubner Center (MRC) für kardiovaskuläre metabolische renale Forschung
Charité-Universitätsmedizin Berlin
lutz.schomburg@charite.de

Dr. med. Helena Orfanos-Boeckel
Praxis für ganzheitliche Innere Medizin
Stoffwechselmedizin und Präventivmedizin
10629 Berlin

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HOB declares that no conflict of interest exists.

Critical Comments

The subject of the Rhineland Study as described in the article is highly relevant (1).

We have critical comments regarding three points:

- The benchmark for undertreatment was a TSH concentration above 4.27 mU/L.
  - This is not consistent with the recommendations of the German College of General Practitioners and Family Physicians (DEGAM) guideline on this subject (2). The guideline provides that a TSH concentration in 70–80 years old is considered elevated at a level of >5 mU/L and in those older than 80 at a level of >6 mU/L.
  - Up to 10 mU/L, no substitution is recommended and in people older than 75 years, this is not needed in concentrations up to 20 mU/L.

Consequently there will be much less undertreatment.

- A TSH concentration between 0.56 mU/L and 4.27 mU/L is not confirmation of successful substitution. In many patients without a clear indication, the L-thyroxin dose can be tapered out under TSH monitoring.
- According to some statements, not enough TSH monitoring controls are carried out. In 2022, 22.5 million measurements were taken (personal communication from the Zentralinstitut für die kassenärztliche Versorgung [ZI, the central institute for statutory health insurance provision/care provision], dated 22 June 2023).
- Monitoring TSH concentrations is costly, at €3 for the laboratory expenditure. In older persons—except in acute decompensation and/or dose finding periods—much longer monitoring intervals are sufficient (every 5 years) (3).

Tracing overtreatment and undertreatment with thyroid hormone and putting a stop to it requires a high level of commitment. The article raises awareness of the subject, but it underestimates overtreatment and overestimates undertreatment.

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Dr. med. Günther Egidi
Bremen
guenther.egidi@posteo.de

Dr. med. Jeannine Schübel
Dr rer. nat. Karen Voigt
Medizinische Fakultät Carl Gustav Carus der TU Dresden
Bereich Allgemeinmedizin

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JS and KV are authors of and GE served as an expert reviewer for the DEGAM guideline "Elevated TSH levels in general practice". All three are conducting research into the care for patients with thyroid disease. The research projects are financed with public funds. GE and JS are general practitioners.

In Reply:

Levothyroxine treatment requires careful adjustment; manifest hypothyroidism inevitably requires treatment, whereas latent hypothyroidism requires decisions made on an individual basis. Independent of age, asymptomatic patients (TSH≤ 10 mU/L) should not receive any substitution treatment. Patients older than 75 years should be treated if their TSH level exceeds 10 mU/L. For those older than 75 with latent hypothyroidism (TSH<20 mU/L), substitution is not required (1).

In treated patients, the guideline recommends a THS range of 0.4–4.0 mU/L (laboratory reference ranges vary [inter]nationally) (1).

Levothyroxine dosages should be determined based on age, weight, cardiac status, and severity of hypothyroidism (1). TSH is the primary marker for thyroid function and is considered the most sensitive indicator for thyroid hormone changes . Many epidemiological studies therefore use the TSH level to categorize overtreatment or undertreatment with levothyroxine (2, 3). However, treatment success depends not only on the TSH level but also on the well-being, potential adverse effects, and patients' adherence.

Population-based studies enable insights into the quality of drug treatment in the general population and