Frequency of over- and under-treatment with levothyroxine in primary care in Germany

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La Cour et al. (1) performed a retrospective cohort study comprising inhabitants in Copenhagen who had thyroid-stimulating hormone (TSH) measurements requested by General Practitioners which led to a new prescription of levothyroxine between 2001 and 2012. They reported a cumulative incidence of 4.7% for being over- and 7.4% for being under-treated. Moreover, the hazard of overtreatment was higher among women and younger adults.

Inspired by this interesting article, we performed a similar study in Germany using a longitudinal database (Disease Analyzer database) which compiles drug prescriptions, diagnoses, and basic medical and demographic data obtained directly and in anonymous format from computer systems used in the practices of General Practitioners and specialists (2). Our study included 131 660 individuals who received the first levothyroxine prescription from 1051 General Practices between 2005 and 2018. Our definitions for under- and over-treatment were the same as in the study of La Cour et al. (1). Over- and under-treatment was defined as TSH < 0.1 mIU/L or above 10 mIU/mL, respectively, in three consecutive measurements. In our study, the cumulative risk of undertreatment was 3.0% and of overtreatment 1.3%. Women had an increased risk of undertreatment (hazard ratio (HR): 1.52; P < 0.001) and a decreased risk of overtreatment (HR: 0.54; P < 0.001).

Based on these findings, we can confirm the low risk of under- and over-treatment with levothyroxine in German outpatients. However, in our study, there was no increased but decreased risk of overtreatment and only increased risk of undertreatment were observed among female patients. Further research is warranted to identify the factors which could explain differences between countries in terms of the risk of overtreatment in women.

Declaration of interest
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References

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