Abstract: P3414

Differences in total life expectancy and life expectancy with and without non-communicable diseases within the reference range of thyroid function

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Background: Variations in thyroid function within the reference ranges are associated with an increased risk of diseases and death. However, the impact of thyroid function on life expectancy (LE) and the number of years lived with and without non-communicable diseases (NCD) remains unknown.

Purpose: We aimed to investigate the association of thyroid function with total LE and LE with and without NCD among euthyroid subjects.

Methods: Participants of the Rotterdam Study without known thyroid disease and with thyroid-stimulating hormone (TSH) and free thyroxine (FT4) levels within the reference ranges were eligible. NCD were defined as the presence of cardiovascular disease, diabetes mellitus type 2, or cancer. We used multistate life tables to calculate the total LE and LE with and without NCD among TSH and FT4 tertiles, in men and women. LE estimates were obtained using prevalence, incidence rates and hazard ratios for three transitions (healthy to NCD, healthy to death and NCD to death). Analyses were adjusted for sociodemographic and cardiovascular risk factors.

Results: The mean (standard deviation) age of 7644 participants was 64.5 (9.7) years and 52.2% were women. Over a median follow-up of 8 years, we observed 1396 incident NCD events and 1422 deaths. Compared with those in the lowest tertile, men and women in the highest TSH tertile lived 1.5 (95% confidence interval [CI], 0.8; 2.3) and 1.5 (95% CI, 0.8; 2.2) years longer, respectively; of which 1.4 (95% CI, 0.5; 2.3) and 1.3 (95% CI, 0.3; 2.1) years with NCD. Compared with those in the lowest tertile, the difference in LE for men and women in the highest FT4 tertile was −3.7 (95% CI, −5.1 to −2.2) and −3.3 (95% CI, −4.7; −1.9), respectively; of which −1.8 (95% CI, −3.1 to −0.7) and −2.0 (95% CI, −3.4 to −0.7) years without NCD.

Conclusions: There are meaningful differences in total LE, LE with and without NCD within the reference ranges of thyroid function. People with low-normal thyroid function live more years with and without NCD than those with high-normal thyroid function. These findings support a reevaluation of the current reference ranges of thyroid function.
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Life expectancy in TSH and FT4 tertiles