Association between directly measured free testosterone levels and mortality in Korean elderly men: insights from the Ansung cohort study

Young-Sang Kim

Department of Family Medicine, CHA University, CHA Bundang Medical Center, Seongnam, South Korea.

Background: Previous studies have established an association between low testosterone levels and mortality. However, most investigations focusing on free testosterone (FT) have relied on calculated levels derived from formulas rather than direct measurements. This study aimed to examine the relationship between directly measured FT levels and mortality in elderly Korean men.

Methods: Data from the Ansung cohort, a biennial population-based study, were utilized for this analysis. Baseline data from the 8th wave (2015-2016) were analyzed, with mortality data collected until 2020. FT levels were assessed using a radioimmunoassay method.

Results: The analysis included 1103 men aged 54-84. The median concentration of FT was 8.14 pg/mL. Participants were categorized into quartiles based on their FT levels. The mortality rates were 18.12%, 6.55%, 6.55%, and 5.05% across the quartiles, respectively (P<0.001). After adjusting for age and body mass index, a 1-standard deviation increase in FT was associated with a hazard ratio of 0.676 (0.538-0.850). Cubic spline analysis indicated a significant increase in mortality rates for FT levels below 8 pg/mL.

Key Conclusions: This study provides evidence of an association between low directly measured FT levels and mortality in elderly Korean men. These findings align with previous studies that relied on calculated FT levels. Future investigations incorporating measurements of sex hormone-binding globulin and other sex hormones may enhance our understanding of the relationship between sex hormones and mortality.