Association between fasting glucose and cardiovascular disease mortality in cancer survivors: a population-based study

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Background: Prevention of subsequent cardiovascular disease (CVD) is an essential part of care among cancer survivors.

Purpose: We investigated the association of fasting blood sugar (FBS) with the risk of CVD mortality in cancer survivors.

Methods: Using nationwide cohort data, we included cancer patients who underwent health examination during 2009-2010 and survived more than 5 years as of Dec 31, 2010. We excluded those with known CVD. Participants were categorized into 5 groups by FBS levels. Clinical endpoint was mortality due to CVD (ischemic heart disease, stroke, heart failure, or sudden cardiac death).

Results: Among 177,774 cancer survivors (mean age 59.9 ± 23.0 years, female 59.1%), a reverse L-shaped association was observed between FBS and overall CVD mortality (Figure 1). Adjusted hazard ratios (95% confidence intervals) were 1.14 (0.72-1.81), 1.00 (reference), 1.02 (0.94-1.11), 1.40 (1.24-1.58), and 2.28 (1.88-2.77) for FBS <70, 70-99, 100-125, 126-179, and 180mg/dL, respectively. When we stratified by age, the risk of hypoglycemia (FBS < 70mg/dL) for CVD mortality was evident in middle aged adults (<65 years), but not in older adults (≥65 years) (Figure 2). Among middle aged cancer survivors, the adjusted hazard ratio (95% confidence intervals) were 2.97 (1.32-6.69), 1.00 (reference), 0.95 (0.74-1.21), 1.58 (1.13-2.21), and 1.97 (1.19-3.26) for FBS <70, 70-99, 100-125, 126-179, and 180mg/dL, respectively.

Conclusion: The strict control of elevated FBS is essential to prevent CVD mortality even in cancer survivors. Meanwhile, the risk of hypoglycemia in middle-aged cancer survivors should not be overlooked either.