1. No.

   2021Y020

2. Title

   Impact of smoking-gene interaction on mortality and diabetic complications

3. Period

   2021-2023

4. Summary

Smoking is an important risk factor for death, cardiovascular diseases, and cancer. However, the effects among Japanese patients with diabetes have not been clarified. Therefore, we examined the effects of smoking status, amount of cigarettes smoking, years since smoking cessation, and age at start and quit smoking on the risk of all-cause mortality, cardiovascular diseases, and cancer in 4,923 Japanese patients with type 2 diabetes. The interactions between smoking and KCNQ1 gene variant (rs2237892) on HbA1c level was also examined.

Current smokers were at an increased risk of all-cause mortality, cardiovascular diseases, and cancer, compared with never smokers. Past smokers were at a decreased risk of the outcomes, compared with current smokers. Among current smokers, increases in the amount of smoking were linearly associated with an increased risk of the outcomes. On the other hand, the risk decreased significantly with increases in the years since quitting and decreases in age at quit smoking. Although cumulative amount of smoking was linearly associated with elevated HbA1c level, magnitudes of the association were greater in KCNQ1 CC/CT genotype compared with TT genotype.

Smoking and its cessation were associated with the risk of all-cause mortality, cardiovascular diseases, and cancer. In addition, the effects of smoking on glycemia may be modified by the genetic predisposition.