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ONE-YEAR VARIATION OF FASTING PLASMA GLUCOSE IS A STRONG PREDICTOR OF HIP FRACTURE IN ELDERLY WITH TYPE 2 DIABETES MELLITUS: THE TAIWAN DIABETES STUDY

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Background: Glucose stability is one of the goals in the management of diabetes. Diabetes is reported to be a risk factor of osteoporosis, an important risk factor of hip fracture. However, epidemiological studies exploring the effect of glucose stability on the risk of hip fracture among type 2 diabetic patients hasn't been done. The present study examined the association between one-year glucose variation as measured by coefficient of variation (CV) of fasting plasma glucose (FPG) and hemoglobin A1c (HbA1c) and hip fracture in a large number of type 2 diabetes patients followed for an average of 7.22 years.

Methods: We conducted a retrospective cohort study on 13,730 type 2 diabetes elders who participated in the National Diabetes Case Management Program in Taiwan. One-year variation of HbA1c and FPG at baseline and hip fracture events over the 8-9 years was analyzed.

Results: There were a total of 933 incident cases of hip fracture. Patients were grouped in tertiles of FPG-CV and HbA1c-CV. The incidence rates for FPG-CV were 7.55, 9.80, and 10.87 per 1000 person years and for HbA1c-CV were 8.71, 9.41, and 10.12 per 1000 person years in the groups of 1st, 2nd, and 3rd tertile, respectively. After adjusting for age, gender, duration of diabetes, type of treatment, smoking, hypertension, hyperlipidemia, FPG-M, HbA1C, and complications, FPG-CV was independently associated with hip fracture, but HbA1c-CV was not. The hazard ratios of hip fracture for 2nd, 3rd versus 1st tertile of FPG-CV were 1.19 (1.01-1.41), and 1.23 (1.04-1.46), respectively.

Conclusion: Patients categorized as FPG variation greater than 17.62% or more exhibited an increased risk of hip fracture, confirming a linear relationship. One-year variation of FPG was a strong predictor of hip fracture in type 2 diabetic patients. Our study findings suggest that glucose variation may become a measure in clinical practice for the goal in the management of these patients

Key words: diabetes, fasting plasma glucose, hip fracture

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ONE-YEAR VARIATION OF FASTING PLASMA GLUCOSE IS A STRONG PREDICTOR OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN ELDERLY WITH TYPE 2 DIABETES MELLITUS: THE TAIWAN DIABETES STUDY

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Background: It has been suggested that patients with diabetes were at risk for developing chronic airflow obstruction that could subsequently incur significant disability due to mechanical dysfunction of the lungs and airways. Glucose stability is one of the goals in the management of diabetes. Thus, the present study examined the association between one-year glucose variation as measured by coefficient of variation (CV) of fasting plasma glucose (FPG) and hemoglobin A1c (HbA1c) and risk of chronic obstructive pulmonary disease (COPD) in a large number of type 2 diabetes patients followed for an average of 7.02 years.

Methods: We conducted a retrospective cohort study on 10,253 type 2 diabetes elders who participated in the National Diabetes Case Management Program in Taiwan. One-year variation of HbA1c and FPG at baseline and COPD events over the 7.02 years was analyzed.

Results: There were a total of 1,188 incident cases of COPD. Patients were grouped in tertiles of FPG-CV and HbA1c-CV. The incidence rates for FPG-CV were 14.68, 16.45, and 18.25 per 1000 person years and for HbA1c-CV were 14.68, 16.45, and 18.25 per 1000 person years in the groups of 1st, 2nd, and 3rd tertile, respectively. After adjusting for age, gender, duration of diabetes, type of treatment, smoking, hypertension, hyperlipidemia, FPG-M, HbA1C, and complications, both FPG-CV and HbA1c-CV were independently associated with COPD. The hazard ratios of COPD for 3rd versus 1st tertile of FPG-CV were 1.18 (1.02-1.37), whereas the hazard ratios of COPD for 2nd, 3rd versus 1st tertile of HbA1c-CV were 1.17 (1.01-1.35), and 1.21 (1.04-1.40), respectively.

Conclusion: Patients categorized as FPG variation greater than 34.43% or more or as HbA1c variation greater than 8.29% or more exhibited an increased risk of COPD, confirming a linear relationship. One-year variation of FPG and HbA1c are strong predictors of COPD in type 2 diabetic patients. Our study findings suggest that we should pay much attention to lung dysfunction in diabetes, with an emphasis on the emerging potential clinical implications of such dysfunction.

Key words: diabetes, fasting plasma glucose, hemoglobin, chronic obstructive pulmonary disease