

Diabetic complications stratified by past maximum body mass index

¹Center of Diabetes, Endocrine and Metabolism, Toho University Sakura Medical Center ²Department of Internal Medicine, Toho University Sakura Medical Center

Takashi Yamaguchi¹, Atsuhito Saiki¹, Noriko Ban¹, Hidetoshi Kawana¹, Daiji Nagayama¹, Ayako Nagumo¹, Masahiro Ohira¹, Kei Endo¹, Tomokazu Oyama¹, Yoh Miyashita¹, Kohji Shirai²

Background: In Japan, prevalence of obesity (especially high degree obesity values $35 < \text{BMI}$) is relatively low. Therefore, relationship between degree of obesity and development of diabetic complications has not been fully understood. **Objective:** To investigate the impact of past maximum BMI on the subsequent development of diabetic complications. **Methods:** One hundred inpatients with type 2 diabetes were divided into 3 groups according to each patient's past maximum BMI; Group A: $25 < \text{BMI} < 30$, Group B: $30 < \text{BMI} < 35$ and Group C: $35 < \text{BMI}$. There were no significant differences in mean age, duration of diabetes and HbA1C among all groups. And we compared the prevalence of diabetic complications as well as other obesity-related complications among groups retrospectively. **Results:** Mean past maximum BMI of each group (Group A, B and C) were 28.4, 32.1 and 37.3 respectively. In group C, the difference between past maximum BMI and mean current BMI (30.2) was greater than in other groups. A rate of Insulin use was significantly higher in Group C than in Group A (Odd ratio: 6.3). With increase in past maximum BMI, the prevalence of diabetic retinopathy, nephropathy and neuropathy became higher (Odd ratio; retinopathy: 3.4, 7.6, nephropathy: 3.9, 12.3 and neuropathy: 6.9, 14.8). The prevalence of diabetic macro angiopathy (includes coronary artery disease, cerebral infarction and peripheral artery disease) also tended to be higher in Group C than in other groups (Odd ratio: 2.1, 2.7). Arterial stiffness (evaluated by cardio-ankle vascular index) was significantly higher in Group C than in Group A (7.7vs9.8). The prevalence of the other obesity-related complications (sleep apnea syndrome, osteoarthritis, liver dysfunction) showed similar results. **Conclusion:** Degree of obesity may associate with future development of obesity-related complications, especially with diabetic complications.

Background: The impact of a degree of obesity on the development of diabetic and other obesity-related complications is not fully understood. Objective: To investigate the impact of a maximum BMI in the past history on the development of diabetic and other obesity-related complications. Methods: One hundred inpatients with type 2 diabetes were divided into 3 groups according to each patients maximum BMI in the past history (max BMI); Group A: $25 < \text{BMI} < 30$, Group B: $30 < \text{BMI} < 35$ and Group C: $35 < \text{BMI}$. And we compared the prevalence of diabetic complications as well as other obesity-related complications among groups. Results: Mean max BMI (Group A, B and C) were 28.4, 32.1 and 37.3 respectively. In all groups, mean present BMI (25.8, 27.4 and 30.2) were significantly lower than those of max BMI. There were no significant differences in mean age, duration of diabetes and HbA_{1c} among all groups. A rate of Insulin use was significantly higher in Group C than Group A (Odd ratio: 6.3). The prevalence of diabetic retinopathy, nephropathy and neuropathy became higher accompanied with increased max BMI (Odd ratio; retinopathy: 3.4, 7.6, nephropathy: 3.9, 12.3 and neuropathy: 6.9, 14.8). The prevalence of diabetic macro angiopathy (includes coronary artery disease, cerebral infarction and peripheral artery disease) tended to be higher in Group C than the other groups (Odd ratio: 2.1, 2.7). Arterial stiffness (evaluated by cardio-ankle vascular index) was significantly higher in Group C than Group A (7.7 vs 9.8). The prevalence of the other obesity-related complications (sleep apnea syndrome, osteoarthritis, liver dysfunction) showed similar results. Conclusion: A degree of obesity in the past history might be associated with the development of obesity-related complications, especially with diabetic complications.