

Supporting information:

Supplementary Figure 1. Percentage of any fracture (A) and fall-related fractures (B) according to the duration of diabetes in Japanese patients with type 1 diabetes.

Supplementary Figure 2. Association between number of any fracture (A) or fall-related fractures (B) and history of severe hypoglycemia in Japanese patients with type 1 diabetes.

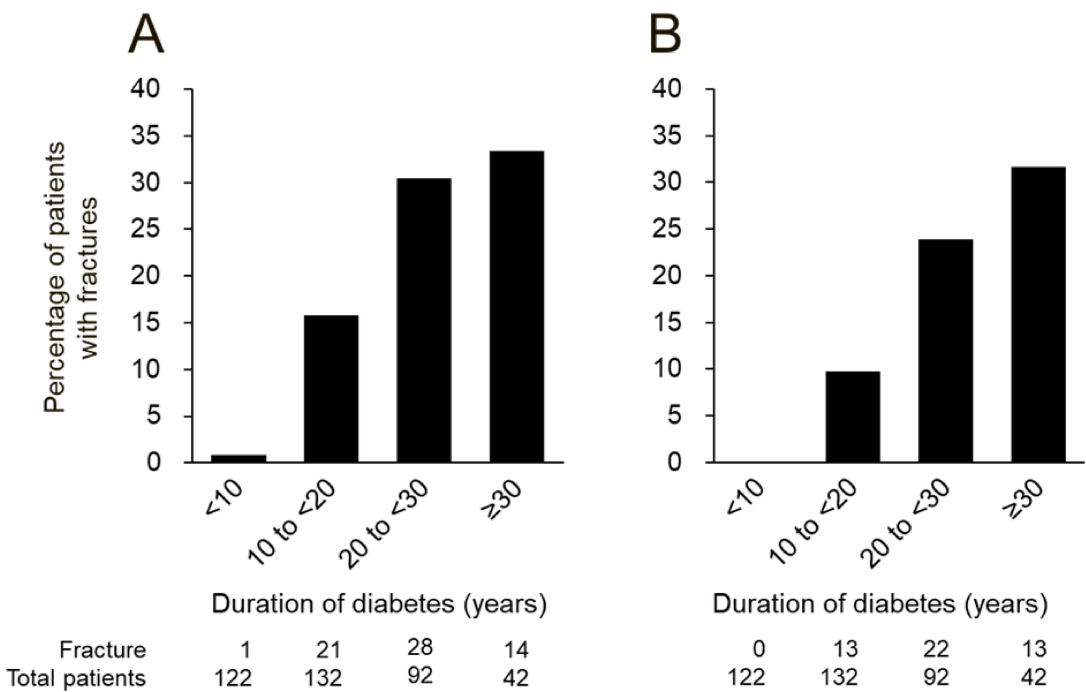
Supplementary Table 1. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the combination of fall and severe hypoglycemia in patients with type 1 diabetes.

Supplementary Table 2. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic neuropathy in patients with type 1 diabetes.

Supplementary Table 3. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic retinopathy in patients with type 1 diabetes.

Supplementary Table 4. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic kidney disease in patients with type 1 diabetes.

Supplementary Figure 1. Percentage of any fracture (A) and fall-related fractures (B) according to the duration of diabetes in Japanese patients with type 1 diabetes.



A

P for trend < 0.001

History of severe hypoglycemia (%)

Number of fractures

Number of fractures	Severe hypoglycemia (%)
0	~37
1	~61
≥ 2	~78

B

P for trend = 0.001

History of severe hypoglycemia (%)

Number of fractures

Number of fractures	Severe hypoglycemia (%)
0	~39
1	~64
≥ 2	~67

Supplementary Table 1. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the combination of fall and severe hypoglycemia in patients with type 1 diabetes.

	Any fracture		Fall-related fracture	
	Without combination of fall or severe hypoglycemia	With combination of fall and severe hypoglycemia	Without combination of fall or severe hypoglycemia	With combination of fall and severe hypoglycemia
Number of patients with fracture	50	14	35	13
Number of total patients	345	43	345	43
Percentage of patients with fracture (%)	14.5	32.6	10.1	30.2
Odds ratio (95% CI)				
Unadjusted	1.0 (ref.)	2.85 (1.38-5.69)	1.0 (ref.)	3.84 (1.79-7.93)
Age-and sex-adjusted	1.0 (ref.)	2.68 (1.29-5.41)	1.0 (ref.)	3.72 (1.73-7.72)
Multivariate adjusted	1.0 (ref.)	2.36 (1.04-5.18)	1.0 (ref.)	3.44 (1.47-7.88)
Multivariate adjusted + neuropathy, diabetic retinopathy, DKD	1.0 (ref.)	2.45 (1.08-5.43)	1.0 (ref.)	3.59 (1.51-8.31)

Multivariate adjustments include age, sex, BMI, diabetes duration, current smoking habit, current drinking habit, exercise habit, family history of hip fracture, weight loss, and hemoglobin A_{1c}; DKD, diabetic kidney disease.

Supplementary Table 2. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic neuropathy in patients with type 1 diabetes

	Any fracture		Fall-related fracture	
	Without neuropathy	With neuropathy	Without neuropathy	With neuropathy
Number of patients with fracture	44	20	32	16
Number of total patients	301	87	301	87
Percentage of patients with fracture (%)	14.6	23.0	10.6	18.4
Odds ratio (95% CI)				
Unadjusted	1.0 (ref.)	1.74 (0.95-3.12)	1.0 (ref.)	1.89 (0.97-3.60)
Age-and sex-adjusted	1.0 (ref.)	2.14 (1.02-4.51)	1.0 (ref.)	2.12 (0.94-4.77)
Multivariate adjusted	1.0 (ref.)	1.36 (0.59-3.12)	1.0 (ref.)	1.33 (0.53-3.30)
Multivariate adjusted + diabetic retinopathy, DKD, severe hypoglycemia	1.0 (ref.)	1.21 (0.52-2.81)	1.0 (ref.)	1.17 (0.46-2.95)

Multivariate adjustments include age, sex, BMI, diabetes duration, current smoking habit, current drinking habit, exercise habit, family history of hip fracture, weight loss, and hemoglobin A_{1c}; DKD, diabetic kidney disease.

Supplementary Table 3. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic retinopathy in patients with type 1 diabetes

	Any fracture		Fall-related fracture	
	Without retinopathy	With retinopathy	Without retinopathy	With retinopathy
Number of patients with fracture	31	33	21	27
Number of total patients	258	130	258	130
Percentage of patients with fracture (%)	12.0	25.4	8.1	20.8
Odds ratio (95% CI)				
Unadjusted	1.0 (ref.)	2.49 (1.45-4.31)	1.0 (ref.)	2.96 (1.60-5.53)
Age-and sex-adjusted	1.0 (ref.)	3.36 (1.83-6.26)	1.0 (ref.)	3.43 (1.79-6.91)
Multivariate adjusted	1.0 (ref.)	1.61 (0.77-3.37)	1.0 (ref.)	1.50 (0.67-3.37)
Multivariate adjusted + neuropathy, DKD, severe hypoglycemia	1.0 (ref.)	1.64 (0.77-3.53)	1.0 (ref.)	1.44 (0.62-3.32)

Multivariate adjustments include age, sex, BMI, diabetes duration, current smoking habit, current drinking habit, exercise habit, family history of hip fracture, weight loss, and hemoglobin A_{1c}; DKD, diabetic kidney disease.

Supplementary Table 4. Adjusted odds ratios and 95% CIs for any fracture or fall-related fracture according to the presence of diabetic kidney disease in patients with type 1 diabetes

	Any fracture		Fall-related fracture	
	Without DKD	With DKD	Without DKD	With DKD
Number of patients with fracture	48	16	34	14
Number of total patients	317	71	317	71
Percentage of patients with fracture (%)	15.1	22.5	10.7	19.7
Odds ratio (95% CI)				
Unadjusted	1.0 (ref.)	1.63 (0.84-3.03)	1.0 (ref.)	2.04 (1.01-3.99)
Age-and sex-adjusted	1.0 (ref.)	1.90 (0.96-3.65)	1.0 (ref.)	2.16 (1.04-4.32)
Multivariate adjusted	1.0 (ref.)	1.14 (0.52-2.42)	1.0 (ref.)	1.37 (0.59-3.07)
Multivariate adjusted + neuropathy, retinopathy, severe hypoglycemia	1.0 (ref.)	0.95 (0.41-2.09)	1.0 (ref.)	1.19 (0.49-2.77)

Multivariate adjustment include age, sex, BMI, diabetes duration, current smoking habit, current drinking habit, exercise habit, family history of hip fracture, weight loss, hemoglobin A_{1c}. DKD, diabetic kidney disease.