

Table S1. Clinical characteristics of study participants who underwent carotid ultrasonography or brachial-ankle pulse wave velocity (baPWV)

Variables	carotid ultrasonography	baPWV
n	602	445
Age, years	64.9±9.2	65.9±9.0
Gender, males/females	380/220	301/144
Duration of diabetes, years	13.3±8.3	13.5±8.3
Body mass index, kg/m ²	24.6±3.8	24.4±3.7
Systolic blood pressure, mmHg	132.0±14.8	132.5±14.8
Diastolic blood pressure, mmHg	76.4±10.9	77.1±11.2
HbA1c, %	7.0±0.8	7.1±0.8
Total cholesterol, mg/dL	184.4±31.2	190.1±30.0
LDL cholesterol, mg/dL	102.5±25.9	107.0±24.6
HDL cholesterol, mg/dL	59.9±15.8	60.1±15.6
Triglycerides, mg/dL	98.0 [72.0, 138.0]	99.0 [71.0, 140.0]
Uric acid, mg/dL	5.19±1.23	5.22±1.24
eGFR, mL/min/1.73 m ²	70.0±18.2	70.8±18.3
u-Alb/Cr, mg/g · Cre	13.7 [6.0, 41.0]	13.9 [6.3, 40.9]
Neuropathy, n (%)	206 (34.2)	152 (34.2)
Retinopathy, n (%)	147 (24.4)	108 (24.3)
Nephropathy, n (%)	149 (24.8)	123 (27.6)
Use of oral glucose-lowering agents, n (%)		
Metformin	339 (56.3)	234 (52.6)
Sulfonylurea	69 (11.5)	59 (13.3)
Glinide	38 (6.3)	25 (5.6)
Dipeptidyl peptidase-4 inhibitors	334 (57.1)	252 (56.6)
Sodium-glucose cotransporter-2 inhibitors	149 (24.8)	102 (22.9)
Thiazolidinediones	94 (15.6)	55 (12.4)
α-glucosidase inhibitor	131 (21.8)	124 (27.9)
Glucagon-like peptide-1 antagonists	42 (7.0)	20 (4.5)
Insulin	97 (16.1)	63 (14.2)
Use of antihypertensive drugs, n (%)	309 (51.3)	233 (52.4)
ACE inhibitors	12 (2.0)	18 (4.0)
Angiotensin II receptor blockers	256 (42.5)	192 (43.1)
Calcium channel blockers	165 (27.4)	117 (26.3)
Use of lipid-lowering agents, n (%)	376 (62.7)	254 (57.1)
Statins	320 (53.3)	207 (46.5)
Ezetimibe	74 (12.3)	43 (9.7)
Fibrates	24 (4.0)	20 (4.5)
Use of antithrombotic agents, n (%)	33 (5.5)	24 (5.4)
Antiplatelet agents	25 (4.2)	19 (4.3)
Anticoagulants	9 (1.5)	5 (1.1)
FLP-CGM-derived metrics		
Mean glucose, mg/dL	137.3±30.3	142.0±32.0
SD, mg/dL	35.3±10.8	36.5±11.8
CV, %	25.8±5.9	25.6±5.8
TIR, %	80.9±17.7	78.7±19.8
TAR ^{>180mg/dL} , %	17.0±18.2	19.6±20.1
TAR ^{>250mg/dL} , %	3.1±8.0	4.0±9.1
TBR ^{<70mg/dL} , %	2.2±4.7	1.8±4.3
TBR ^{<54mg/dL} , %	0.3±1.4	0.3±1.4
GRI	14.2 [7.1, 28.9]	14.6 [7.1, 31.2]
Hypoglycaemia component of GRI	0.2 [0.0, 1.7]	0.1 [0.0, 1.3]
Hyperglycemia component of GRI	6.0 [1.9, 12.4]	6.6 [2.2, 16.1]

Data are mean±SD or n (%), median [interquartile ranges].

- 5 HbA1c, haemoglobin A1c; SD, standard deviation; CV, coefficient of variation; TIR, time in range; TAR, time above range; TBR, time below range; LBG, low blood glucose index;

HBGI, high blood glucose index; MODD, means of daily differences; IQR, interquartile range; GRI, glycemia risk index; IMT, intima media thickness; CCA, common carotid artery; GSM, gray scale median; baPWV, brachial-ankle pulse wave velocity.

10 Table S2. Clinical characteristics of study participants.

Variables	GRI Q1 (<8.33)	GRI Q2 (≥ 8.33 to 16.35)	GRI Q3 (≥ 16.35 to <31.25)	GRI Q4 (≥ 31.25)	<i>p</i> -value
n	248	245	256	250	
Age, years	63.3 $\pm$ 9.1	64.7 $\pm$ 9.9	65.8 $\pm$ 8.7	64.4 $\pm$ 10.7	0.015
Gender, males/females	149/99	146/99	160/96	153/97	0.914 [†]
Duration of diabetes, years	10.4 $\pm$ 7.8	12.2 $\pm$ 8.1	14.4 $\pm$ 8.9	14.3 $\pm$ 8.6	<0.001
Body mass index, kg/m ²	24.9 $\pm$ 3.7	24.5 $\pm$ 3.9	24.7 $\pm$ 3.9	24.3 $\pm$ 3.9	0.321
Systolic blood pressure, mmHg	130.1 $\pm$ 14.8	132.2 $\pm$ 14.1	130.7 $\pm$ 13.4	132.0 $\pm$ 16.8	0.245
Diastolic blood pressure, mmHg	76.0 $\pm$ 11.1	76.1 $\pm$ 10.5	74.8 $\pm$ 11.2	75.3 $\pm$ 11.2	0.431
HbA1c, %	6.6 $\pm$ 0.5	6.8 $\pm$ 0.6	7.1 $\pm$ 0.6	7.7 $\pm$ 1.1	<0.001
Total cholesterol, mg/dL	188.0 $\pm$ 32.3	184.2 $\pm$ 29.7	184.6 $\pm$ 29.8	186.6 $\pm$ 34.3	0.604
LDL cholesterol, mg/dL	105.8 $\pm$ 26.3	102.5 $\pm$ 25.6	101.2 $\pm$ 24.9	103.1 $\pm$ 28.9	0.294
HDL cholesterol, mg/dL	60.6 $\pm$ 16.1	60.6 $\pm$ 15.0	60.5 $\pm$ 15.1	59.8 $\pm$ 16.5	0.878
Triglycerides, mg/dL	95.5 [69.5, 135.0]	95.0 [70.0, 136.0]	102.0 [73.5, 145.0]	144.0 [74.0, 144.0]	0.181
Uric acid, mg/dL	5.2 $\pm$ 1.2	5.2 $\pm$ 1.2	5.1 $\pm$ 1.2	5.1 $\pm$ 1.3	0.554
eGFR, mL/min/1.73 m ²	73.2 $\pm$ 17.2	74.9 $\pm$ 19.0	73.1 $\pm$ 20.0	72.5 $\pm$ 25.5	0.235
u-Alb/Cr, mg/g $\cdot$ Cre	10.0 [5.5, 28.3]	12.7 [6.0, 31.2]	14.9 [7.1, 45.2]	24.2 [8.3, 84.7]	<0.001
Neuropathy, n (%)	51 (20.6)	60 (24.5)	65 (25.4)	110 (44.0)	<0.001 [†]
Retinopathy, n (%)	34 (13.7)	49 (20.0)	58 (22.7)	81 (32.4)	<0.001 [†]
Nephropathy, n (%)	39 (15.7)	58 (23.7)	72 (28.1)	101 (40.4)	<0.001 [†]
Use of oral glucose-lowering agents, n (%)					
Metformin	131 (52.8)	141 (57.6)	144 (56.3)	127 (50.8)	0.409 [†]
Sulfonylurea	14 (5.6)	25 (10.2)	39 (15.2)	49 (19.6)	<0.001 [†]
Glinide	8 (3.2)	16 (6.5)	17 (6.6)	27 (10.8)	0.010 [†]
Dipeptidyl peptidase-4 inhibitors	144 (58.1)	138 (56.3)	147 (57.4)	148 (59.2)	0.932 [†]
Sodium-glucose cotransporter-2 inhibitors	48 (19.4)	53 (21.6)	65 (25.4)	65 (26.0)	0.241 [†]
Thiazolidinediones	26 (10.5)	39 (15.9)	37 (14.5)	41 (16.4)	0.224 [†]
α -glucosidase inhibitor	56 (22.6)	46 (18.8)	33 (12.9)	37 (14.8)	0.020 [†]
Glucagon-like peptide-1 antagonists	11 (4.4)	11 (4.5)	21 (8.2)	31 (12.4)	0.001 [†]
Insulin	7 (2.8)	23 (9.4)	48 (18.8)	80 (32.0)	<0.001 [†]
Use of antihypertensive drugs, n (%)	116 (46.8)	116 (47.3)	131 (51.2)	120 (48.0)	0.759 [†]
ACE inhibitors	5 (2.0)	8 (3.3)	7 (2.7)	8 (3.2)	0.824 [†]
Angiotensin II receptor blockers	99 (39.9)	95 (38.8)	101 (39.5)	95 (38.0)	0.974 [†]
Calcium channel blockers	61 (24.6)	67 (27.3)	85 (33.2)	60 (24.0)	0.079 [†]
Use of lipid-lowering agents, n (%)	151 (60.9)	158 (64.8)	144 (56.5)	142 (56.8)	0.194 [†]
Statins	126 (50.8)	134 (54.9)	124 (48.6)	124 (49.6)	0.518 [†]
Ezetimibe	33 (13.3)	33 (13.5)	22 (8.6)	19 (7.6)	0.059 [†]
Fibrates	9 (3.6)	7 (2.9)	11 (4.3)	14 (5.6)	0.469 [†]
Use of antithrombotic agents, n (%)	18 (7.3)	13 (5.3)	17 (6.6)	16 (6.4)	0.845 [†]
Antiplatelet agents	13 (5.2)	11 (4.5)	11 (4.3)	15 (6.0)	0.812 [†]
Anticoagulants	6 (2.4)	2 (0.8)	6 (2.3)	1 (0.4)	0.140 [†]
FLP-CGM-derived metrics					
Mean glucose, mg/dL	119.8 $\pm$ 10.3	129.8 $\pm$ 12.7	140.7 $\pm$ 20.1	171.2 $\pm$ 44.9	<0.001
SD, mg/dL	26.1 $\pm$ 4.6	33.8 $\pm$ 4.9	38.9 $\pm$ 7.4	47.9 $\pm$ 12.6	<0.001
CV, %	21.8 $\pm$ 3.7	26.1 $\pm$ 3.9	27.9 $\pm$ 4.8	29.0 $\pm$ 7.2	<0.001
TIR, %	95.5 $\pm$ 2.5	87.8 $\pm$ 3.7	78.0 $\pm$ 7.0	54.5 $\pm$ 19.0	<0.001
TAR ^{>180mg/dL} , %	3.9 $\pm$ 2.7	11.0 $\pm$ 5.0	19.7 $\pm$ 9.7	40.9 $\pm$ 23.9	<0.001
TAR ^{>250mg/dL} , %	0.1 $\pm$ 0.2	0.4 $\pm$ 0.4	1.9 $\pm$ 1.9	12.9 $\pm$ 12.9	<0.001
TBR ^{<70mg/dL} , %	0.5 $\pm$ 0.7	1.2 $\pm$ 1.6	2.3 $\pm$ 3.3	4.6 $\pm$ 8.1	0.101
TBR ^{<54mg/dL} , %	0.0 $\pm$ 0.1	0.1 $\pm$ 0.2	0.2 $\pm$ 0.5	1.0 $\pm$ 2.9	<0.001
GRI	4.6 [2.8, 6.4]	12.1 [10.4, 13.8]	22.2 [18.9, 26.9]	47.0 [36.9, 62.9]	<0.001
Hypoglycaemia component of GRI	0.2 [0.0, 0.6]	0.2 [0.0, 1.7]	0.2 [0.0, 3.2]	0.0 [0.0, 6.4]	0.100
Hyperglycemia component of GRI	1.9 [0.8, 3.0]	6.2 [4.4, 7.7]	11.6 [7.4, 15.4]	24.9 [16.7, 35.1]	<0.001
Ultrasonographic scans of the artery, n	168	161	135	136	
Mean-IMT, mm	0.74 $\pm$ 0.17	0.76 $\pm$ 0.16	0.77 $\pm$ 0.13	0.76 $\pm$ 0.13	0.121
CCA-max, mm	1.07 $\pm$ 0.42	1.09 $\pm$ 0.36	1.16 $\pm$ 0.52	1.13 $\pm$ 0.47	0.067
Mean-GSM	52.5 $\pm$ 20.3	49.0 $\pm$ 19.3	48.4 $\pm$ 18.6	43.8 $\pm$ 17.7	<0.001
Thickened lesion-GSM	48.7 $\pm$ 21.4	43.4 $\pm$ 19.1	43.0 $\pm$ 19.7	37.9 $\pm$ 15.6	<0.001
Plaque-GSM	66.1 $\pm$ 31.8	62.4 $\pm$ 29.4	57.5 $\pm$ 24.1	59.0 $\pm$ 32.6	0.075
Arterial stiffness, n	124	111	95	115	
PWV, cm/s	1591 $\pm$ 305	1700 $\pm$ 312	1712 $\pm$ 306	1828 $\pm$ 474	<0.001

Data are mean $\pm$ SD or n (%), median [interquartile range].

The data were divided into four groups based on quartiles (Q1-Q4).

p values represent differences among the GRI groups (Q1, Q2, Q3 and Q4), assessed by the Kruskal-Wallis test.

15 † χ^2 test was used to determine the association between differences among the GRI groups (Q1, Q2, Q3 and Q4).

See Table S1 for abbreviations.

Table S3. Association of GRI with thickened-GSM and plaque-GSM.

		mean-IMT (n=600)		mean-GSM (n=599)	
		β (95% CI)	p value	β (95% CI)	p value
Model 1					
GRI		0.0002 (-0.0004, 0.0008)	0.458	-0.1485 (-0.2242, -0.0728)	<0.001
Model 3					
GRI		0.0002 (-0.0005, 0.0009)	0.610	-0.1407 (-0.2331, -0.0484)	0.003
Age		0.0045 (0.0030, 0.0060)	<0.001	-0.3610 (-0.5528, -0.1692)	<0.001
Gender, female		-0.0415 (-0.0722, -0.0109)	0.008	-1.8507 (-5.7296, 2.0281)	0.349
BMI		-0.0024 (-0.0059, 0.0012)	0.191	-1.0667 (-1.5171, -0.6163)	<0.001
Duration of diabetes		-0.0001 (-0.0017, 0.0015)	0.911	-0.2963 (-0.5001, -0.0925)	0.004
HbA1c		-0.0114 (-0.0299, 0.0071)	0.226	0.7561 (-1.5790, 3.0913)	0.525
Systolic blood pressure		0.0015 (0.0007, 0.0023)	<0.001	0.0720 (-0.0314, 0.1753)	0.172
LDL cholesterol		0.0100 (-0.0090, 0.0289)	0.302	0.0538 (-2.3424, 2.4500)	0.965
HDL cholesterol		-0.0213 (-0.0540, 0.0114)	0.202	4.3644 (0.2237, 8.5051)	0.039
Log-transformed triglycerides		-0.0067 (-0.0334, 0.0199)	0.619	-3.9152 (-7.2901, -0.5404)	0.023
eGFR		-0.0002 (-0.0010, 0.0005)	0.530	-0.1261 (-0.2238, -0.0283)	0.012
Uric acid		0.0000 (-0.0002, 0.0002)	0.776	0.0055 (-0.0188, 0.0298)	0.655
Log-transformed u-Alb		0.0013 (-0.0072, 0.0098)	0.759	-0.2198 (-1.2985, 0.8589)	0.689
Smoking	Never	Reference	0.169	Reference	0.102
	Current	0.0154 (-0.0193, 0.0502)		4.7904 (0.3978, 9.1830)	
	Former	0.0281 (-0.0011, 0.0574)		1.8181 (-1.8809, 5.5170)	
Alcohol consumption		-0.0235 (-0.0488, 0.0017)	0.067	-0.7622 (-3.9524, 2.4279)	0.639
Use of insulin therapy		-0.0162 (-0.0517, 0.0193)	0.371	-3.1475 (-7.6654, 1.3705)	0.172
Use of ACE-i and/or ARB		0.0083 (-0.0173, 0.0340)	0.524	5.0856 (1.8412, 8.3300)	0.002
Use of statin		0.0131 (-0.0124, 0.0387)	0.314	-5.5566 (-8.7932, -2.3200)	<0.001
Use of antiplatelet agents		0.0165 (-0.0412, 0.0742)	0.575	-5.6896 (-12.9889, 1.6098)	0.126
Presence of retinopathy		0.0215 (-0.0079, 0.0509)	0.152	3.1160 (-0.6072, 6.8391)	0.101

20 Data are results of univariable and multivariable linear regression analysis.

GRI, gray-scale median; CI, confidence interval; BMI, body mass index; HbA1c,

haemoglobin A1c; log-transformed u-Alb, log-transformed urine albumin-to-creatinine ratio;

ACE, angiotensin-converting enzyme; HbA1c, haemoglobin A1c; HDL, high-density

lipoprotein; LDL, low-density lipoprotein; eGFR, estimated glomerular filtration rate; ACE-i

25 and/or ARB, ACE inhibitor and/or Angiotensin II receptor blockers.

Table S4. Association of GRI with baPWV.

		mean-baPWV (n=445)	
		β (95% CI)	p value
Model 1			
GRI		3.5628 (2.0579, 5.0677)	<0.001
Model 3			
GRI		2.9531 (1.1942, 4.7120)	0.001
Age		13.6400 (9.8194, 17.4607)	<0.001
Gender, female		41.8603 (-34.6854, 118.4061)	0.283
BMI		-14.7629 (-23.8005, -5.7253)	0.001
Duration of diabetes		4.6420 (0.8364, 8.4477)	0.017
HbA1c		-63.7979 (-113.1121, -14.4838)	0.011
Systolic blood pressure		6.2756 (4.2782, 8.2731)	<0.001
LDL cholesterol		-32.2136 (-81.4314, 17.0042)	0.199
HDL cholesterol		-34.9423 (-117.1812, 47.2967)	0.404
Log-transformed triglycerides		56.4067 (-6.3806, 119.1940)	0.078
eGFR		0.4226 (-1.3764, 2.2216)	0.645
Uric acid		0.0807 (-0.3801, 0.5415)	0.731
Log-transformed u-Alb		42.5772 (21.7169, 63.4375)	<0.001
Smoking	Never	Reference	0.375
	Current	-33.8316 (-118.5544, 50.8912)	
	Former	23.6535 (-47.6302, 94.9372)	
Alcohol consumption		40.9810 (-21.1981, 103.1600)	0.196
Use of insulin therapy		55.2452 (-33.3559, 143.8462)	0.221
Use of ACE-i and/or ARB		-17.2276 (-80.3899, 45.9346)	0.592
Use of statin		-64.4812 (-126.4853, -2.4770)	0.042
Use of antiplatelet agents		-9.1849 (-152.0688, 133.6991)	0.900
Presence of retinopathy		17.4015 (-53.5905, 88.3934)	0.630

Results of univariable and multivariable linear regression analysis.

30 See Table S2 for abbreviations.

Table S5. Association of GRI with thickened-GSM and plaque-GSM.

		Thickened-GSM (n=566)		plaque-GSM (n=490)	
		β (95% CI)	p value	β (95% CI)	p value
Model 1					
GRI		-0.1469 (-0.2253, -0.0685)	<0.001	-0.1052 (-0.2341, 0.0237)	0.109
Model 2					
GRI		-0.0580 (-0.1581, 0.0422)	0.256	0.1214 (-0.0444, 0.2873)	0.151
Age		-0.4038 (-0.6165, -0.1911)	<0.001	-0.2668 (-0.6229, 0.0893)	0.142
Gender, female		4.3803 (0.0524, 8.7082)	0.047	7.6452 (0.4062, 14.8842)	0.039
BMI		-0.0563 (-0.5540, 0.4414)	0.824	-0.8034 (-1.6349, 0.0282)	0.058
Duration of diabetes		0.0042 (-0.2238, 0.2321)	0.971	-0.0891 (-0.4605, 0.2824)	0.638
HbA1c		-0.9404 (-3.4778, 1.5970)	0.467	-5.0462 (-9.1789, -0.9134)	0.017
Systolic blood pressure		0.0362 (-0.0766, 0.1490)	0.528	0.0921 (-0.0939, 0.2780)	0.331
Total cholesterol		0.2657 (-2.3244, 2.8558)	0.84	-0.9534 (-5.3296, 3.4228)	0.669
HDL cholesterol		3.1665 (-1.9280, 8.2609)	0.223	-1.4696 (-9.9365, 6.9973)	0.733
Log-transformed triglycerides		-1.7999 (-5.6689, 2.0691)	0.361	1.2847 (-5.1388, 7.7081)	0.694
eGFR		-0.0779 (-0.1861, 0.0304)	0.158	-0.0625 (-0.2564, 0.1314)	0.527
Uric acid		-0.0226 (-0.0491, 0.004)	0.095	-0.0123 (-0.0579, 0.0334)	0.598
Log-transformed u-Alb		-0.6262 (-1.802, 0.5496)	0.296	-0.2146 (-2.1723, 1.7431)	0.830
Smoking	Never	Reference	0.215	Reference	0.985
	Current	3.2114 (-1.6750, 8.0979)		0.6148 (-7.600, 8.8296)	
	Former	3.4087 (-0.6595, 7.4768)		0.5170 (-6.2131, 7.2472)	
Alcohol consumption		-1.0273 (-4.5645, 2.5100)	0.569	2.5833 (-3.4446, 8.6112)	0.400
Use of insulin therapy		-6.8097 (-11.7207, -1.8988)	0.007	-12.4695 (-20.5113, -4.4277)	0.002
Use of ACE-i and/or ARB		4.8544 (1.2944, 8.4143)	0.008	5.6821 (-0.3544, 11.7186)	0.065
Use of statin		-2.9763 (-6.5741, 0.6215)	0.105	-1.3764 (-7.5155, 4.7627)	0.660
Use of antiplatelet agents		-7.8402 (-15.7264, 0.0460)	0.051	-16.9155 (-29.8871, -3.9440)	0.011
Presence of retinopathy		-1.4548 (-5.5332, 2.6236)	0.484	0.9959 (-5.7649, 7.7567)	0.772

Results of univariable and multivariable linear regression analysis.

See Table S2 for abbreviations.

Table S6. Association of the hypoglycaemia component of GRI with intima-media thickness and gray-scale median.

		mean-IMT (n=600)		mean-GSM (n=599)	
		β (95% CI)	p value	β (95% CI)	p value
Model 1					
GRI		0.0029 (-0.0002, 0.0060)	0.063	0.0665 (-0.3209, 0.4538)	0.736
Model 2					
GRI		0.0010 (-0.0021, 0.0041)	0.534	-0.2125 (-0.6080, 0.1831)	0.292
Age		0.0045 (0.0030, 0.0061)	<0.001	-0.3604 (-0.5573, -0.1635)	<0.001
Gender, female		-0.0364 (-0.0674, -0.0053)	0.022	-1.3820 (-5.3409, 2.5768)	0.493
BMI		-0.0023 (-0.0059, 0.0013)	0.216	-1.0456 (-1.5099, -0.5812)	<0.001
Duration of diabetes		-0.0002 (-0.0018, 0.0015)	0.850	-0.3062 (-0.5191, -0.0932)	0.005
HbA1c		-0.0055 (-0.0219, 0.0108)	0.507	-1.2531 (-3.3349, 0.8287)	0.238
Systolic blood pressure		0.0015 (0.0007, 0.0023)	<0.001	0.0810 (-0.0247, 0.1866)	0.133
Total cholesterol		0.0052 (-0.0136, 0.0241)	0.585	0.0098 (-2.3988, 2.4185)	0.994
HDL cholesterol		-0.0244 (-0.0617, 0.0129)	0.200	3.2653 (-1.4897, 8.0203)	0.178
Log-transformed triglycerides		-0.0073 (-0.0358, 0.0213)	0.618	-4.3044 (-7.9472, -0.6617)	0.021
eGFR		-0.0003 (-0.0011, 0.0005)	0.521	-0.1197 (-0.2210, -0.0183)	0.021
Uric acid		0.0000 (-0.0002, 0.0002)	0.735	0.0077 (-0.0171, 0.0325)	0.542
Log-transformed u-Alb		0.0015 (-0.0072, 0.0102)	0.732	-0.3542 (-1.4615, 0.7531)	0.530
Smoking	Never	Reference	0.190	Reference	0.199
	Current	0.0182 (-0.0170, 0.0534)		4.0999 (-0.3879, 8.5877)	
	Former	0.0275 (-0.0023, 0.0573)		1.8006 (-1.9962, 5.5973)	
Alcohol consumption		-0.0206 (-0.0463, 0.0051)	0.116	-0.4647 (-3.7389, 2.8095)	0.781
Use of insulin therapy		-0.0142 (-0.0502, 0.0219)	0.441	-4.8444 (-9.4635, -0.2254)	0.040
Use of ACE-i and/or ARB		0.0078 (-0.0185, 0.0341)	0.561	5.3804 (2.0242, 8.7366)	0.002
Use of statin		0.0084 (-0.0179, 0.0347)	0.533	-5.3414 (-8.6945, -1.9883)	0.002
Use of antiplatelet agents		0.0175 (-0.0417, 0.0766)	0.562	-5.7240 (-13.2627, 1.8148)	0.136
Presence of retinopathy		0.0200 (-0.0101, 0.0501)	0.192	3.3069 (-0.5286, 7.1425)	0.091

40 Results of univariable and multivariable linear regression analysis.

See Table S2 for abbreviations.

Table S7. Association of the hyperglycaemia component of GRI with intima-media45 **thickness and gray-scale median.**

	mean-IMT (n=600)		mean-GSM (n=599)	
	β (95% CI)	p value	β (95% CI)	p value
Model 1				
GRI	-0.0003 (-0.0012, 0.0007)	0.582	-0.2565 (-0.3777, -0.1352)	<0.001
Model 2				
GRI	0.0002 (-0.0012, 0.0017)	0.759	-0.2641 (-0.4510, -0.0772)	0.006
Age	0.0045 (0.0030, 0.0061)	<0.001	-0.3319 (-0.5283, -0.1354)	<0.001
Gender, female	-0.0353 (-0.0667, -0.0039)	0.028	-2.3156 (-6.2941, 1.6628)	0.253
BMI	-0.0023 (-0.0060, 0.0013)	0.211	-1.0592 (-1.5207, -0.5978)	<0.001
Duration of diabetes	-0.0001 (-0.0018, 0.0016)	0.902	-0.3404 (-0.5525, -0.1282)	0.002
HbA1c	-0.0096 (-0.0331, 0.0139)	0.424	2.1476 (-0.8285, 5.1238)	0.157
Systolic blood pressure	0.0015 (0.0007, 0.0023)	<0.001	0.0696 (-0.0353, 0.1745)	0.193
Total cholesterol	0.0050 (-0.0139, 0.0239)	0.604	0.1834 (-2.2125, 2.5793)	0.881
HDL cholesterol	-0.0246 (-0.0620, 0.0129)	0.198	3.8037 (-0.9404, 8.5478)	0.116
Log-transformed triglycerides	-0.0076 (-0.0362, 0.0210)	0.600	-4.1082 (-7.7289, -0.4876)	0.026
eGFR	-0.0003 (-0.0011, 0.0005)	0.463	-0.1118 (-0.2116, -0.0119)	0.028
Uric acid	0.0000 (-0.0002, 0.0002)	0.735	0.0070 (-0.0177, 0.0316)	0.580
Log-transformed u-Alb	0.0015 (-0.0072, 0.0102)	0.736	-0.2652 (-1.3680, 0.8375)	0.637
Smoking	Never	Reference	Reference	0.188
	Current	0.0185 (-0.0167, 0.0537)	4.1549 (-0.3033, 8.6130)	
	Former	0.0281 (-0.0017, 0.0579)	1.5606 (-2.2094, 5.3305)	
Alcohol consumption	-0.0206 (-0.0462, 0.0051)	0.117	-0.5567 (-3.8118, 2.6985)	0.737
Use of insulin therapy	-0.0121 (-0.0474, 0.0233)	0.502	-5.0204 (-9.5205, -0.5203)	0.029
Use of ACE-i and/or ARB	0.0085 (-0.0178, 0.0348)	0.528	5.1124 (1.7812, 8.4435)	0.003
Use of statin	0.0077 (-0.0185, 0.0339)	0.565	-5.2540 (-8.5737, -1.9344)	0.002
Use of antiplatelet agents	0.0168 (-0.0425, 0.0761)	0.577	-5.0608 (-12.5680, 2.4464)	0.186
Presence of retinopathy	0.0200 (-0.0101, 0.0501)	0.193	3.0869 (-0.7289, 6.9027)	0.113

Results of univariable and multivariable linear regression analysis.

See Table S2 for abbreviations.

Table S8. Association of the hypoglycaemia component of GRI with thickened-GSM and plaque-GSM.

		Thickened-GSM (n=566)		plaque-GSM (n=490)	
		β (95% CI)	p value	β (95% CI)	p value
Model 1					
GRI		0.0718 (-0.3309, 0.4746)	0.726	0.8433 (0.2071, 1.4794)	0.009
Model 2					
GRI		0.0418 (-0.3801, 0.4638)	0.846	0.9523 (0.2620, 1.6425)	0.007
Age		-0.4115 (-0.6240, -0.1989)	<0.001	-0.2405 (-0.5947, 0.1138)	0.183
Gender, female		4.5878 (0.2673, 8.9083)	0.037	6.8714 (-0.3092, 14.0519)	0.061
BMI		-0.0389 (-0.5370, 0.4592)	0.878	-0.7808 (-1.6073, 0.0457)	0.064
Duration of diabetes		0.0050 (-0.2236, 0.2336)	0.966	-0.1316 (-0.5015, 0.2384)	0.485
HbA1c		-1.6695 (-3.8896, 0.5506)	0.140	-2.0077 (-5.6389, 1.6235)	0.278
Systolic blood pressure		0.0341 (-0.0792, 0.1473)	0.555	0.0710 (-0.1147, 0.2567)	0.453
Total cholesterol		0.2394 (-2.3540, 2.8329)	0.856	-0.7757 (-5.1276, 3.5762)	0.726
HDL cholesterol		2.9354 (-2.1525, 8.0234)	0.258	-1.0115 (-9.4110, 7.3879)	0.813
Log-transformed triglycerides		-1.7984 (-5.6729, 2.0760)	0.362	1.5439 (-4.8439, 7.9316)	0.635
eGFR		-0.0720 (-0.1811, 0.0372)	0.196	-0.0317 (-0.2262, 0.1627)	0.749
Uric acid		-0.0223 (-0.0489, 0.0042)	0.099	-0.0105 (-0.0558, 0.0349)	0.650
Log-transformed u-Alb		-0.6706 (-1.8458, 0.5046)	0.263	-0.1726 (-2.1172, 1.7719)	0.862
Smoking	Never	Reference	0.231	Reference	0.982
	Current	3.0723 (-1.8191, 7.9637)		0.7473 (-7.4159, 8.9104)	
	Former	3.3656 (-0.7127, 7.4438)		0.0735 (-6.6244, 6.7714)	
Alcohol consumption		-0.9683 (-4.5084, 2.5718)	0.591	2.4344 (-3.5568, 8.4257)	0.425
Use of insulin therapy		-7.4228 (-12.3610, -2.4846)	0.003	-13.4889 (-21.4878, -5.4899)	<0.001
Use of ACE-i and/or ARB		4.7864 (1.2168, 8.3559)	0.009	5.2369 (-0.7755, 11.2494)	0.088
Use of statin		-2.8091 (-6.4178, 0.7996)	0.127	-0.8915 (-7.0037, 5.2207)	0.774
Use of antiplatelet agents		-8.0619 (-15.9484, -0.1753)	0.045	-16.5759 (-29.4388, -3.7129)	0.012
Presence of retinopathy		-1.3100 (-5.3897, 2.7697)	0.528	0.9094 (-5.8006, 7.6193)	0.790

Results of univariable and multivariable linear regression analysis.

Table S9. Association of the hyperglycaemia component of GRI with thickened-GSM and plaque-GSM.

	Thickened-GSM (n=566)		plaque-GSM (n=490)	
	β (95% CI)	p value	β (95% CI)	p value
Model 1				
GRI	-0.2511 (-0.3766, -0.1256)	<0.001	-0.3400 (-0.5432, -0.1368)	0.001
Model 2				
GRI	-0.1440 (-0.3444, 0.0563)	0.158	-0.0899 (-0.4304, 0.2506)	0.604
Age	-0.3967 (-0.6099, -0.1836)	<0.001	-0.2565 (-0.6140, 0.1010)	0.159
Gender, female	4.1022 (-0.2620, 8.4664)	0.065	6.9837 (-0.3184, 14.2859)	0.061
BMI	-0.0560 (-0.5531, 0.4411)	0.825	-0.8399 (-1.6727, -0.0071)	0.048
Duration of diabetes	-0.0097 (-0.2385, 0.2192)	0.934	-0.1086 (-0.4834, 0.2662)	0.569
HbA1c	-0.0138 (-3.2169, 3.1894)	0.993	-2.3510 (-7.7600, 3.0580)	0.393
Systolic blood pressure	0.0308 (-0.0820, 0.1437)	0.592	0.0977 (-0.0885, 0.2839)	0.303
Total cholesterol	0.3101 (-2.2798, 2.9000)	0.814	-0.9283 (-5.3145, 3.4579)	0.678
HDL cholesterol	3.3529 (-1.7553, 8.4610)	0.198	-0.7859 (-9.3248, 7.7529)	0.857
Log-transformed triglycerides	-1.7126 (-5.5811, 2.1558)	0.385	1.3578 (-5.0845, 7.8000)	0.679
eGFR	-0.0730 (-0.1809, 0.0349)	0.184	-0.0807 (-0.2736, 0.1121)	0.411
Uric acid	-0.0226 (-0.0491, 0.0039)	0.095	-0.0124 (-0.0581, 0.0333)	0.595
Log-transformed u-Alb	-0.6021 (-1.7784, 0.5743)	0.315	-0.1241 (-2.0888, 1.8406)	0.901
Smoking	Never	Reference	Reference	0.979
	Current	3.1849 (-1.6955, 8.0653)	0.8491 (-7.3868, 9.0850)	
	Former	3.2677 (-0.8008, 7.3362)	0.4357 (-6.3171, 7.1885)	
Alcohol consumption	-1.0508 (-4.5860, 2.4844)	0.560	2.4699 (-3.5716, 8.5114)	0.422
Use of insulin therapy	-7.1403 (-11.9737, -2.3069)	0.004	-11.1881 (-19.1204, -3.2559)	0.006
Use of ACE-i and/or ARB	4.7511 (1.1936, 8.3085)	0.009	5.8209 (-0.2246, 11.8665)	0.059
Use of statin	-2.8789 (-6.4670, 0.7091)	0.116	-1.8191 (-7.9501, 4.3119)	0.560
Use of antiplatelet agents	-7.7254 (-15.6107, 0.1600)	0.055	-15.9955 (-28.9914, -2.9995)	0.016
Presence of retinopathy	-1.5125 (-5.5903, 2.5652)	0.467	0.5450 (-6.2427, 7.3327)	0.875

60 Results of univariable and multivariable linear regression analysis.

See Table S2 for abbreviations.

Table S10. Association of the hypoglycaemia component of GRI with brachial-ankle pulse wave velocity (baPWV).

		mean-baPWV (n=445)	
		β (95% CI)	p value
Model 1			
GRI		19.1962 (9.9577, 28.4348)	<0.001
Model 2			
GRI		9.8682 (1.5155, 18.2208)	0.021
Age		14.7396 (10.8640, 18.6152)	<0.001
Gender, female		43.1531 (-33.8389, 120.1451)	0.271
BMI		-14.6358 (-23.7923, -5.4792)	0.002
Duration of diabetes		3.7681 (-0.1461, 7.6822)	0.059
HbA1c		-4.6154 (-45.6365, 36.4058)	0.825
Systolic blood pressure		6.2779 (4.2595, 8.2963)	<0.001
Total cholesterol		-41.8849 (-89.9351, 6.1653)	0.087
HDL cholesterol		11.4704 (-80.4192, 103.3599)	0.806
Log-transformed triglycerides		86.3694 (19.6126, 153.1262)	0.011
eGFR		0.7247 (-1.1305, 2.5800)	0.443
Uric acid		0.0424 (-0.4245, 0.5093)	0.858
Log-transformed u-Alb		46.5649 (25.4736, 67.6562)	<0.001
Smoking	Never	Reference	0.546
	Current	-5.4955 (-90.2715, 79.2806)	
	Former	33.1339 (-39.0676, 105.3354)	
Alcohol consumption		35.8093 (-27.5669, 99.1855)	0.267
Use of insulin therapy		61.5405 (-29.2004, 152.2813)	0.183
Use of ACE-i and/or ARB		-15.4494 (-80.1859, 49.2870)	0.639
Use of statin		-72.9231 (-136.5835, -9.2628)	0.025
Use of antiplatelet agents		36.1783 (-105.2809, 177.6375)	0.615
Presence of retinopathy		14.0044 (-58.3683, 86.3771)	0.704

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Results of univariable and multivariable linear regression analysis.

See Table S2 for abbreviations.

70 **Table S11. Association of the hyperglycaemia component of GRI with brachial-ankle pulse wave velocity (baPWV).**

mean-baPWV (n=445)		
	β (95% CI)	p value
Model 1		
GRI	3.5782 (1.1697, 5.9868)	0.004
Model 2		
GRI	4.6723 (1.4361, 7.9085)	0.005
Age	14.0063 (10.1116, 17.9010)	<0.001
Gender, female	58.7452 (-18.1614, 135.6519)	0.134
BMI	-14.2335 (-23.3655, -5.1016)	0.002
Duration of diabetes	4.5344 (0.6516, 8.4172)	0.022
HbA1c	-74.6522 (-132.3181, -16.9864)	0.011
Systolic blood pressure	6.4006 (4.3883, 8.4129)	<0.001
Total cholesterol	-41.2593 (-89.1157, 6.5972)	0.091
HDL cholesterol	3.4843 (-88.4119, 95.3805)	0.941
Log-transformed triglycerides	70.1944 (3.2340, 137.1547)	0.040
eGFR	0.1690 (-1.6658, 2.0038)	0.856
Uric acid	0.0887 (-0.3778, 0.5551)	0.709
Log-transformed u-Alb	43.2046 (21.9887, 64.4206)	<0.001
Smoking	Never	Reference
	Current	-18.2063 (-103.4207, 67.0082)
	Former	35.8374 (-36.0682, 107.7431)
Alcohol consumption		42.7492 (-20.3884, 105.8868)
Use of insulin therapy		75.6634 (-13.0698, 164.3966)
Use of ACE-i and/or ARB		-10.5863 (-74.9832, 53.8107)
Use of statin		-73.0460 (-136.4806, -9.6114)
Use of antiplatelet agents		-0.0011 (-141.0350, 141.0329)
Presence of retinopathy		15.3175 (-56.8332, 87.4681)

Results of univariable and multivariable linear regression analysis.

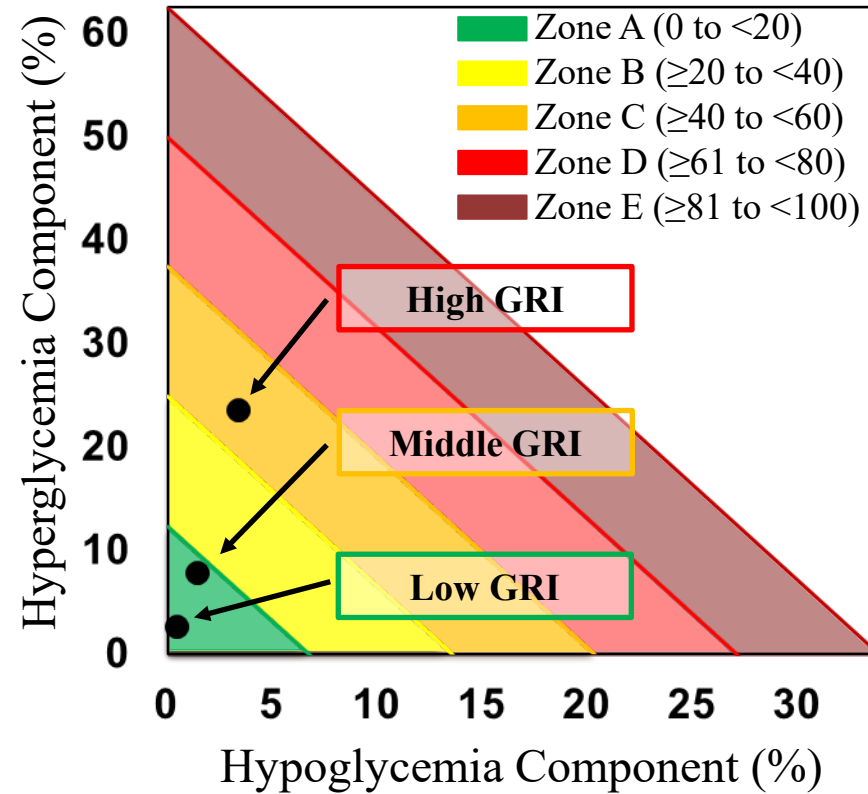
See Table S2 for abbreviations.

75 ***Supplementary Material***

Alphabetically arranged list of medical facilities and investigators.

- Ashiya Central Hospital:** Koji Matsushita, Manabu Narisawa
- 80 **Aso Clinic:** Katsumi Aso, Yuko Ando, Fumihiko Sato
- Hagiwara Central Hospital:** Emiko Morita, Keiichi Torimoto
- Hayashi Clinic:** Isao Hayashi
- Inokuchi Clinic:** Nobuo Inokuchi
- Japan Community Health Care Organization Osaka Hospital:** Masahiro Hatazaki, Arichika Deguchi,
- 85 **Azusa Shiraki**
- Juntendo Tokyo Koto Geriatric Medical Center (Department of Medicine, Diabetology and Endocrinology):** Ayako Kitamura, Eri Tanabe, Hidenori Yoshii, Tomio Onuma, Tomo Nakajima
- Juntendo University Graduate School of Medicine (Department of Metabolism & Endocrinology):** Eisuke Yasunari, Hideyoshi Kaga, Hiroaki Sato, Hirotaka Watada, Kagemi Takeno, Luka Suzuki, Miwa
- 90 **Himuro, Syuhei Aoyama, Takashi Funayama, Takehiro Katahira, Takeshi Miyatsuka, Tomoya Mita, Yuya Nishida**
- Juntendo University Nerima Hospital (Department of Medicine, Diabetes and Endocrinology):** Koji Komiya
- Kanda Naika Clinic:** Satoshi Kawashima
- 95 **Kansai Rosai Hospital (Diabetes and Endocrinology):** Tsunehiko Yamamoto
- Kihara Diabetes Clinic:** Yasuyuki Kihara
- Kosugi Medical Clinic:** Keisuke Kosugi
- Kawasaki Hospital (Department of Internal Medicine):** Akihito Otsuka, Jun Murai
- Matsuoka Medical Clinic:** Hirofumi Matsuoka
- 100 **Misaki Naika Clinic:** Nobuichi Kuribayashi
- Japan Labour Health and Safety Organization Kyushu Rosai Hospital, Moji Medical Center (Department of Internal Medicine):** Tadashi Arao, Kei Sugai
- Musashino Family Clinic:** Yuichi Kojima
- Nakakinen Clinic:** Maiko Nakata, Miyoko Saito, Takeshi Osonoi, Yusuke Osonoi
- 105 **Nakama Municipal hospital:** Kohei Uriu, Yosifumi Inada, Kanako Suzuka, Ichiro Takagi
- National Hospital Organization Osaka National Hospital (Diabetes Center):** Ken Kato
- Nishida Keiko Diabetes Clinic:** Keiko Nishida, Akira Kurozumi, Fumi Uemura, Keiichi Torimoto, Maiko Hajime, Manabu Narisawa, Satomi Sonoda, Kumiko Tidiwa
- Osaka General Medical Center (Department of Diabetes and Endocrinology):** Youhei Fujita, Sayoko
- 110 **Shimizu, Masahisa Hata, Yutaka Umayahara**
- Osaka Police Hospital (Department of Endocrinology and Metabolism):** Tetsuyuki Yasuda
- Osaka Rosai Hospital:** Ryomoto Kayoko
- Osaka University Graduate School of Medicine (Department of Metabolic Medicine):** Ichiro Shimomura, Naoto Katakami, Takaaki Matasuoka, Mitsuyoshi Takahara, Kazuyuki Miyashita, Hiroyo
- 115 **Ninomiya, Naohiro Taya**
- Sasaki Hospital:** Shinichiro Mine, Kenji Koikawa
- School of Medicine, University of Occupational and Environmental Health, Japan (First Department of Internal Medicine):** Yosuke Okada, Akira Kurozumi, Manabu Narisawa, Maiko Hajime, Fumi Uemura, Satomi Sonoda, Kenichi Tanaka, Takashi Otsuka
- 120 **Secomedic Hospital:** Satomi Wakasugi, Tomoya Mita
- Shiraiwa Medical Clinic:** Toshihiko Shiraiwa
- Taneda Clinic:** Yoshinobu Taneda
- Takaishi Naika Ichoka Clinic:** Tomoya Mita
- Tobata General Hospital (Department of Internal Medicine):** Kazuko Kanda
- 125 **Wakamatsu Hospital of the University of Occupational and Environmental Health:** Torimoto Keiichi, Nishio Kousuke

Supplemental Fig.1



Supplemental Fig.2

