

SUPPLEMENTAL MATERIAL

Table S1. Baseline Characteristics of the Female Study Cohort Stratified by dichotomizing baPWV.

Characteristics	baPWV (cm/sec)		P value
	Q1-2 (781-1188) (n=1,251, 49.6%)	Q3-4 (1189-1961) (n=1,273, 50.4%)	
Age (years)	35.7 (5.2)	38.6 (6.8)	<0.001
Glucose (mg/dL)	88.2 (7.3)	89.2 (8.3)	0.001
HbA1c (%)	5.48 (0.3)	5.52 (0.3)	0.003
AST (SGOT) (IU/L)	18.2 (6.2)	19.1 (11.8)	0.021
ALT (SGPT) (IU/L)	14.5 (10)	15.8 (18.5)	0.035
GGT (IU/L)	15.6 (12.6)	18.0 (20.2)	<0.001
Triglyceride (mg/dl)	74.5 (38.1)	81.2 (40)	<0.001
HDL-C (mg/dl)	66.5 (14.3)	65.9 (15)	0.295
LDL-C (mg/dl)	103.6 (25.8)	109.8 (28.3)	<0.001
Uric acid (mg/dl)	4.18 (0.9)	4.24 (0.9)	0.083
hsCRP (mg/l)	0.07 (0.2)	0.09 (0.3)	0.171
Insulin (IU/ml)	5.07 (2.9)	5.18 (3.1)	0.366
HOMA-IR	1.13 (0.7)	1.16 (0.8)	0.195
BMI (kg/m ²)	21.4 (2.8)	21.5 (2.9)	0.377
Waist (cm)	74.1 (7.6)	75.0 (7.7)	0.008
Systolic BP (mmHg)	96.5 (8.0)	101.5 (8.6)	<0.001
Diastolic BP (mmHg)	61.7 (6.3)	65.4 (6.4)	<0.001
Education level			0.133
≥College graduate	1,003 (80.2)	979 (76.9)	

≤High school	203 (16.2)	239 (18.8)	
Unknown	45 (3.6)	55 (4.3)	
Smoking status			<0.001
Never / former smoker	1,207 (96.5)	1,180 (92.7)	
Current smoker	25 (2)	39 (3.1)	
Unknown	19 (1.5)	54 (4.2)	
Alcohol (g/day)	3 (0-6)	3 (0-7)	0.690
Vigorous exercise frequency			0.553
<1 time/week	954 (76.3)	947 (74.4)	
≥1 time/week	284 (22.7)	312 (24.5)	
Unknown	13 (1.0)	14 (1.1)	

Data are presented as n (%) or mean±SD or median (IQR).

ALT, alanine aminotransferase; AST, aspartate aminotransferase; baPWV, brachial-ankle pulse wave velocity; BMI, body mass index; BP, blood pressure; GGT, gamma glutamyl transferase; HbA1c, hemoglobin A1c; HDL-C, high-density lipoprotein cholesterol; HOMA-IR, homeostasis model assessment of insulin resistance; HTN, hypertension; LDL-C, low-density lipoprotein cholesterol.

Table S2. Risk of Incident HTN According to baPWV in Men and Women.

	Person-years	Events (No.)	Incident rate (10,000 person-years)	Age-adjusted HR (95% CI)	Multivariable-adjusted HR* (95% CI)			
					Model 1	Model 2	Model 3	Model 4
Men								
Q1	5,360.3	284	529.8	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Q2	5,763.7	409	709.6	1.27 (1.09-1.48)	1.38 (1.18-1.60)	1.41 (1.21-1.65)	1.32 (1.13-1.54)	1.23 (1.05-1.43)
Q3	5,851.4	527	900.6	1.61 (1.39-1.86)	1.72 (1.49-1.99)	1.79 (1.55-2.07)	1.59 (1.37-1.84)	1.45 (1.25-1.68)
Q4	5,835.8	675	1156.6	2.06 (1.79-2.37)	2.16 (1.88-2.49)	2.28 (1.98-2.62)	1.8 (1.55-2.08)	1.64 (1.41-1.89)
Women								
Q1-2	3,036.0246	21	69.17	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Q3-4	3,068.449	84	273.75	3.12 (1.90-5.11)	3.33 (2.03-5.47)	3.32(2.02-5.44)	1.95 (1.16-3.26)	1.76 (1.05-2.94)

baPWV, brachial-ankle pulse wave velocity; CI, confidence interval; HR, hazard ratio; HTN, hypertension.

*Model 1: adjustment for age, medical center, year of screening examination, smoking status, alcohol intake, exercise and educational level;

Model 2: Model 1 and adjustment for BMI; Model 3: Model 2 and adjustment for SBP; Model 4: Model 3 and adjustment for DBP.

Table S3. Baseline Characteristics of the Cohort Stratified by Incident HTN.

Characteristics	No incident HTN (n=12,427)	HTN (n=1,095)	<i>P</i> value
Age (years)	40.5±7.2	42.8±7.3	<0.001
Sex			<0.001
Male	9,789 (78.77)	1,053 (96.16)	
Female	2,638 (21.23)	42 (3.84)	
Glucose (mg/dL)	93.1 (12.1)	95.9 (12.6)	<0.001
HbA1c (%)	5.57 (0.38)	5.67 (0.41)	<0.001
AST (SGOT) (IU/L)	23.0 (11.9)	26.7 (17.2)	<0.001
ALT (SGPT) (IU/L)	25.0 (18.8)	32.5 (29.6)	<0.001
GGT (IU/L)	35.4 (35.7)	54.3 (57.4)	<0.001
Triglyceride (mg/dl)	121.4 (77.7)	157.0 (119.1)	<0.001
HDL-C (mg/dl)	55.3 (14.2)	50.7 (12.4)	<0.001
LDL-C (mg/dl)	123.6 (30.4)	131.8 (31.4)	<0.001
Uric acid (mg/dl)	5.65 (1.35)	6.22 (1.24)	<0.001
hsCRP (mg/l)	0.10 (0.29)	0.13 (0.34)	<0.001
Insulin (IU/ml)	5.60 (3.39)	6.58 (3.71)	<0.001
HOMA-IR	1.31 (0.90)	1.59 (1.00)	<0.001
BMI (kg/m ²)	23.7 (2.9)	25.3 (2.8)	<0.001
Waist circumference (cm)	82.9 (8.5)	87.6 (7.9)	<0.001
Systolic BP (mmHg)	109.2 (10.6)	121.2 (8.2)	<0.001
Diastolic BP (mmHg)	70.7 (8.1)	79.8 (6.2)	<0.001
Education level			0.021
≥College graduate	10,799 (86.90)	923 (84.29)	

≤High school	1,125 (9.05)	111 (10.14)	
Unknown	503 (4.05)	61 (5.57)	
Smoking status			<0.001
Never / former smoker	8,423 (67.78)	636 (58.08)	
Current smoker	3,799 (30.57)	440 (40.18)	
Unknown	205 (1.65)	19 (1.74)	
Alcohol (g/day)	10.0 (3.0-23.0)	17.0 (7.0-34.0)	<0.001
Vigorous exercise frequency			0.020
<1 time/week	7,405 (59.59)	607 (55.43)	
≥1 time/week	4,914 (39.54)	475 (43.38)	
Unknown	108 (0.87)	13 (1.19)	

Data are presented as n (%) or mean±SD or median (IQR).

Hypertension was defined as systolic blood pressure \geq 140 mmHg, diastolic blood pressure \geq 90 mmHg.

ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; BP, blood pressure; GGT, gamma glutamyl transferase; HbA1c, hemoglobin A1c; HDL-C, high-density lipoprotein cholesterol; HOMA-IR, homeostasis model assessment of insulin resistance; HTN, hypertension; LDL-C, low-density lipoprotein cholesterol.

Table S4. Baseline Characteristics of the Cohort Stratified by baPWV Quartile in Men.

Characteristics	baPWV quartiles (cm/sec)				<i>P</i> value
	Q1 (865-1235) (n=2,697)	Q2 (1236-1321) (n=2,702)	Q3 (1322-1413) (n=2,712)	Q4 (1414-2993) (n=2,731)	
Age (years)	39.9 (6.3)	41.0 (6.6)	41.5 (6.6)	43.7 (8.6)	<0.001
Glucose (mg/dL)	92.6 (9.8)	93.8 (12.1)	94.7 (13.6)	96.4 (14.5)	<0.001
HbA1c (%)	5.56 (0.31)	5.59 (0.38)	5.61 (0.41)	5.65 (0.48)	<0.001
AST (SGOT) (IU/L)	23.5 (15.0)	23.8 (11.1)	24.6 (12.6)	25.7 (12.5)	<0.001
ALT (SGPT) (IU/L)	26.6 (22.1)	27.1 (17.6)	28.7 (19.5)	30.3 (21.5)	<0.001
GGT (IU/L)	36.2 (42.7)	39.5 (35.2)	43.5 (38.3)	48.2 (43.8)	<0.001
Triglyceride (mg/dl)	123.7 (72.2)	128.6 (74.0)	140.5 (90.4)	149.1 (101.9)	<0.001
HDL-C (mg/dl)	52.3 (12.2)	52.5 (12.9)	51.9 (12.5)	52.0 (12.5)	0.247
LDL-C (mg/dl)	125.6 (29.6)	127.0 (29.2)	128.9 (29.4)	132.0 (30.8)	<0.001
Uric acid (mg/dl)	6.02 (1.16)	6.02 (1.16)	6.06 (1.22)	6.12 (1.21)	0.005
hsCRP (mg/l)	0.98 (0.22)	0.10 (0.25)	0.11 (0.34)	0.13 (0.37)	<0.001
Insulin (IU/ml)	5.55 (3.42)	5.66 (3.28)	5.85 (3.38)	6.18 (3.78)	<0.001
HOMA-IR	1.29 (0.88)	1.33 (0.85)	1.39 (0.92)	1.50 (1.06)	<0.001
BMI (kg/m ²)	24.61 (2.81)	24.34 (2.62)	24.35 (2.67)	24.33 (2.71)	<0.001
Waist (cm)	85.6 (7.5)	85.2 (7.1)	85.3 (7.3)	85.5 (7.3)	0.193
Systolic BP (mmHg)	108.6 (9.0)	111.6 (9.3)	113.7 (9.1)	116.8 (9.3)	<0.001
Diastolic BP (mmHg)	69.9 (7.3)	72.4 (7.3)	74.0 (7.2)	76.2 (7.1)	<0.001
Education level					<0.001
≥College graduate	2,492 (92.4)	2,448 (90.60)	2,415 (89.05)	2,275 (83.30)	
≤High school	133 (4.93)	161 (5.96)	185 (6.82)	277 (10.14)	

Unknown	72 (2.67)	93 (3.44)	112 (4.13)	179 (6.55)	
Smoking status					0.021
Never / former smoker	1,643 (60.92)	1,629 (60.29)	1,640 (60.49)	1,616 (59.17)	
Current smoker	1,034 (38.34)	1,033(38.23)	1,037 (38.24)	1,063 (38.92)	
Unknown	20 (0.74)	40 (1.48)	35 (1.29)	52 (1.90)	
Alcohol (g/day)	11 (4.0-24.0)	12 (5.0-28.0)	14.0 (6.0-29.0)	13.0 (5.0-28.0)	<0.001
Vigorous exercise frequency					<0.001
<1 time/week	1,417 (52.54)	1,460 (54.03)	1,541 (56.82)	1,572 (57.56)	
≥1 time/week	1,263 (46.83)	1,214 (44.93)	1,153 (42.51)	1,128 (41.30)	
Unknown	17 (0.63)	28 (1.04)	18 (0.66)	31 (1.14)	

Data are presented as n (%) or mean±SD or median (IQR).

Hypertension was defined as systolic blood pressure \geq 140 mmHg, diastolic blood pressure \geq 90 mmHg.

ALT, alanine aminotransferase; AST, aspartate aminotransferase; baPWV, brachial-ankle pulse wave velocity; BMI, body mass index; BP, blood pressure; GGT, gamma glutamyl transferase; HbA1c, hemoglobin A1c; HDL-C, high-density lipoprotein cholesterol; HOMA-IR, homeostasis model assessment of insulin resistance; HTN, hypertension; LDL-C, low-density lipoprotein cholesterol.

Table S5. Baseline Characteristics of the Cohort Stratified by baPWV Quartile in Women.

Characteristics	baPWV quartiles (cm/sec)				P value
	Q1 (781-1110) (n=670)	Q2 (1111-1197) (n=664)	Q3 (1198-1282) (n=671)	Q4 (1283-2092) (n=675)	
Age (years)	35.1 (5.0)	36.5 (5.3)	37.6 (6.2)	40.4 (7.5)	<0.001
Glucose (mg/dL)	87.9 (7.9)	88.7 (7.2)	88.6 (7.5)	90.5 (9.4)	0.0001
HbA1c (%)	5.47 (0.26)	5.49 (0.26)	5.50 (0.26)	5.55 (0.31)	<0.001
AST (SGOT) (IU/L)	18.1 (6.5)	18.3 (6.3)	19.2 (14.5)	19.3 (7.8)	0.050
ALT (SGPT) (IU/L)	14.6 (11.9)	14.7 (9.7)	16.1 (23.8)	15.8 (9.6)	0.171
GGT (IU/L)	15.3 (13.0)	16.0 (12.5)	17.3 (22.2)	19.4 (18.3)	<0.001
Triglyceride (mg/dl)	73.4 (33.8)	76.8 (48.0)	76.9 (34.9)	87.5 (44.2)	<0.001
HDL-C (mg/dl)	66.6 (14.5)	66.2 (14.0)	66.7 (14.9)	64.9 (14.9)	0.095
LDL-C (mg/dl)	102.2 (24.4)	105.4 (26.7)	107.3 (26.7)	115.1 (30.2)	<0.001
Uric acid (mg/dl)	4.18 (0.91)	4.18 (0.83)	4.24 (0.85)	4.25 (0.87)	0.263
hsCRP (mg/l)	0.07 (0.20)	0.07 (0.17)	0.07 (0.21)	0.10 (0.36)	0.105
Insulin (IU/ml)	5.12 (3.50)	5.13 (2.92)	5.03 (2.93)	5.41 (3.32)	0.135
HOMA-IR	1.14 (0.93)	1.14 (0.71)	1.12 (0.72)	1.24 (0.83)	0.036
BMI (kg/m ²)	21.53 (3.06)	21.39 (2.78)	21.38 (2.95)	21.90 (3.10)	0.003
Waist (cm)	74.24 (7.87)	74.46 (7.73)	74.60 (7.86)	75.84 (7.98)	<0.001
Systolic BP (mmHg)	95.9 (8.2)	97.7 (8.5)	100.3 (8.9)	107.0 (10.7)	<0.001
Diastolic BP (mmHg)	61.1 (6.5)	62.8 (6.7)	64.9 (7.0)	69.4 (8.0)	<0.001
Education level					<0.001
≥College graduate	546 (81.49)	520 (78.31)	545 (81.22)	481 (71.26)	
≤High school	104 (15.52)	115 (17.32)	98 (14.61)	163 (24.15)	

Unknown	20 (2.99)	29 (4.37)	28 (4.17)	31 (4.59)	
Smoking status					0.001
Never / former smoker	648 (96.72)	636 (95.78)	627 (93.44)	620 (91.85)	
Current smoker	15 (2.24)	15 (2.26)	17 (2.53)	25 (3.70)	
Unknown	7 (1.04)	13 (1.96)	27 (4.02)	30 (4.44)	
Alcohol (g/day)	3.0 (1.0-7.0)	3.0 (0.0-6.0)	3.0 (1.0-7.0)	3.0 (1.0-7.0)	0.572
Vigorous exercise frequency					0.877
<1 time/week	504 (75.22)	511 (76.96)	504 (75.11)	503 (74.52)	
≥1 time/week	160 (23.88)	145 (21.84)	162 (24.14)	164 (24.30)	
Unknown	6 (0.90)	8 (1.20)	5 (0.75)	8 (1.19)	

Data are presented as n (%) or mean±SD or median (IQR).

Hypertension was defined as systolic blood pressure \geq 140 mmHg, diastolic blood pressure \geq 90 mmHg.

HbA1c, hemoglobin A1c; ALT, alanine aminotransferase; AST, Aspartate Aminotransferase; GGT, gamma glutamyl transferase; BP, blood pressure; BMI, body mass index; HTN, hypertension; HDL-C, high density lipoprotein cholesterol; HOMA IR, homeostasis model assessment of insulin resistance; LDL-C, low density lipoprotein cholesterol.

Table S6. Risk of Incident HTN According to baPWV in Men and Women.

	Person-years	Events (No.)	Incident rate (10,000 person-years)	Age-adjusted HR (95% CI)	Multivariable-adjusted HR* (95% CI)			
					Model 1	Model 2	Model 3	Model 4
Men								
Q1	7,789.6	106	136.0	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Q2	8,244.8	180	218.3	1.57 (1.24-2.00)	1.68 (1.32-2.14)	1.77 (1.39-2.25)	1.38 (1.08-1.76)	1.29 (1.0-1.64)
Q3	8,424.1	299	354.9	2.54 (2.03-3.17)	2.70 (2.16-3.38)	2.85 (2.28-3.56)	1.98 (1.58-2.48)	1.80 (1.44-2.26)
Q4	8,439.6	468	554.5	3.90 (3.15-4.83)	4.04 (3.26-5.00)	4.19 (3.38-5.19)	2.19 (1.75-2.73)	1.96 (1.57-2.46)
Women								
Q1	1,625.5	1	6.1	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Q2	1,639.8	7	42.6	6.82 (0.84-55.57)	6.69 (0.82-54.63)	7.23 (0.89-59.10)	3.76 (0.45-31.69)	3.03 (0.36-25.92)
Q3	1,635.2	4	24.4	3.64 (0.41-32.74)	3.96 (0.44-35.78)	4.07 (0.45-36.74)	2.01 (0.22-18.48)	1.62 (0.17-15.10)
Q4	1,635.0	30	183.4	26.07 (3.49-194.86)	29.67 (3.94-223.32)	31.34 (4.16-235.94)	5.01 (0.62-40.69)	3.89 (0.47-32.10)

baPWV, brachial-ankle pulse wave velocity; CI, confidence interval; HR, hazard ratio; HTN, hypertension.

Hypertension was defined as systolic blood pressure \geq 140 mmHg, diastolic blood pressure \geq 90 mmHg.

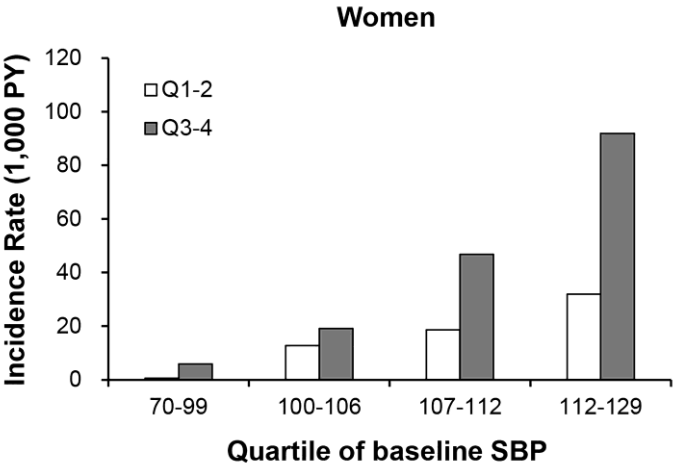
*Model 1: adjustment for age, medical center, year of screening examination, smoking status, alcohol intake, exercise and educational level; Model 2: Model 1 and adjustment for BMI; Model 3: Model 2 and adjustment for SBP; Model 4: Model 3 and adjustment for DBP.

Table S7. The Incidence Rate of Hypertension According to baPWV Quartile and SBP Quartile in Men and Women.

	Incidence rate of hypertension (1,000 person-years)							
	Quartiles of baPWV in Men				Quartiles of baPWV in Women			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Quartiles of baseline SBP (mmHg)								
S1 (70-99)	10.97	18.24	37.68	21.74	0.00	1.12	6.98	4.32
S2 (100-106)	34.49	45.50	50.51	66.26	8.98	16.05	10.07	29.16
S3 (107-112)	62.36	75.99	90.80	120.89	6.97	27.93	25.37	60.00
S4 (112-129)	95.06	112.98	131.60	147.36	0.00	57.84	64.76	102.73

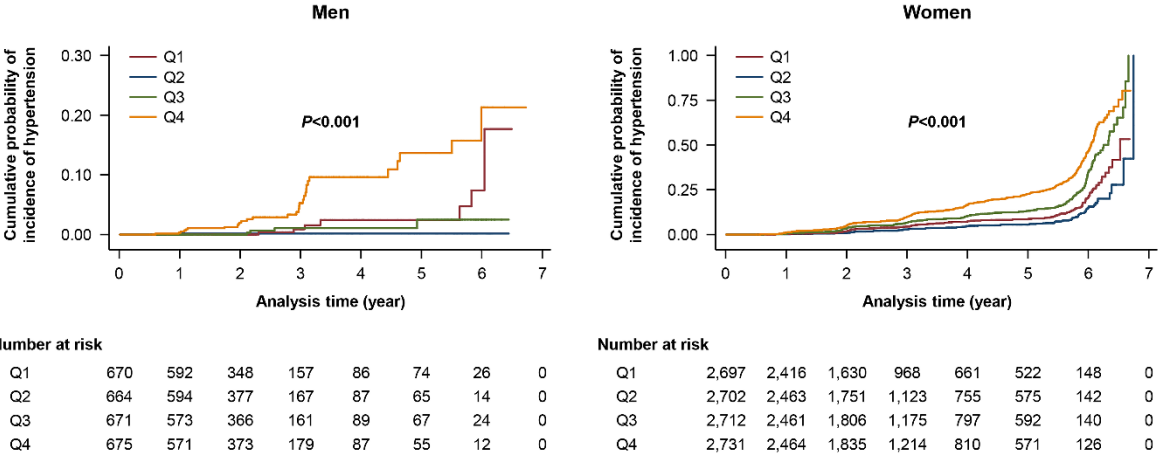
baPWV, brachial-ankle pulse wave velocity; SBP, systolic blood pressure.

Figure S1. Incident hypertension rate by quartiles of baseline systolic blood pressure and dichotomization of baPWV in women.



baPWV, brachial-ankle pulse wave velocity.

Figure S2. Kaplan–Meier Curves for incident hypertension according to baPWV in men and women.



Hypertension was defined as systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg.