Supplementary Table 1: Basic characteristics of subjects based on age group and gender.

Items	≤60 years			>60 years		
	Total ($n = 217$)	Male ($n = 90$)	Female ($n = 127$)	Total ($n = 184$)	Male ($n = 88$)	Female ($n = 96$)
Age (years)	49.59 ±7.13	50.09 ±7.13	49.23 ±7.14	70.81 ±7.13[**]	71.03 ±7.10[**]	70.63 ±7.19[**]
Height (cm)	165.16 ±7.49	171.34 ±5.34	160.86 ±5.51[##]	162.88 ±7.80[**]	169.29 ±4.40[**]	157.65 ±5.81[**,##]
Weight (kg)	64.95 ±11.58	73.35 ±11.10	59.11 ±7.67[##]	63.30 ±10.60[**]	68.66 ±9.51[**]	58.96 ±9.43[##]
BMI (kg/m^2)	23.71 ±3.18	24.96 ±3.45	22.83 ±2.66[##]	23.82 ±3.19	23.92 ±2.88[*]	23.73 ±3.43[*]
Cigarette smoking, n (%)						
Never	156 (71.2)	32 (35.2)	124 (96.9)	152 (83.5)	53 (66.3)	99 (97.1)
Former	11 (5.0)	11 (12.1)	0 (0)	4 (2.2)	4 (5.0)	0 (0)
Current	52 (23.7)	48 (52.7)	4 (3.1)[##]	26 (14.3)[**]	23 (28.8)[**]	3 (2.9)[##]
SBP (mmHg)	126.88 ±17.82	127.48 ±17.61	126.47 ±18.02	136.61 ±20.41[**]	132.18 ±16.96	138.16 ±22.24[**,##]
DBP (mmHg)	77.31 ±10.73	78.23 ±11.35	76.69 ±10.28	78.89 ±9.96	78.58 ±9.94	79.15 ±10.02
TG (mmol/L)	1.02 (0.74–1.63)	1.29 (0.80–1.84)	0.94 (0.69–1.52)[##]	1.06 (0.78–1.54)	0.92 (0.63–1.30)[**]	1.15 (0.86–1.76)[**,##]
TC (mmol/L)	5.08 ±0.92	4.95 ±0.85	5.16 ±0.96	5.22 ±1.01	4.90 ±0.85	5.47 ±1.06[*,##]
HDL (mmol/L)	1.44 ±0.35	1.30 ±0.30	1.53 ±0.34[##]	1.46 ±0.36	1.34 ±0.32	1.55 ±0.37[##]
LDL (mmol/L)	3.18 ±0.78	3.13 ±0.70	3.22 ±0.83	3.38 ±0.93[*]	3.18 ±0.81	3.55 ±0.99[**,##]
FBG (mmol/L)	5.16 (4.86–5.50)	5.24 (4.95–5.75)	5.05 (4.82–5.41)[#]	5.28 (4.99–5.61)[*]	5.32 (5.01–5.66)	5.27 (4.96–5.53)[**]
SCr (μmol/L)	59.00 (50.00–72.00)	73.00 (67.00–78.75)	53.00 (48.00–59.00)[##]	63.00 (55.00–75.00)[**]	72.0 (65.25–82.75)	58.00 (51.00–64.00)[**,##]
CYSC (mg/L)	0.78 (0.69–0.84)	0.80 (0.76–0.90)	0.70 (0.63–0.82)[##]	0.93 (0.80–1.07)[**]	0.97 (0.84–1.10)[**]	0.91 (0.79–1.07)[**]

eGFR (mL/min per 1.73 m^2)	97.37 (87.61–105.06)	92.46 (82.81–100.12)	98.83 (89.25–108.23)$^{##}$	80.58 (69.09–89.29)**	80.34 (69.17–88.69)**	81.09 (68.80–90.16)**
UA (μmol/L)	291.65 ±75.18	344.72 ±69.55	255.71 ±54.98$^{##}$	305.64 ±78.97	337.76 ±86.49	279.15 ±60.90$^{*,##}$
IMT (mm)	0.56 (0.51–0.61)	0.57 (0.51–0.64)	0.55 (0.50–0.61)	0.70 (0.62–0.80)**	0.72 (0.66–0.85)**	0.66 (0.59–0.76)$^{**,##}$
D (mm)	6.65 (6.00–7.38)	7.25 (6.45–7.68)	6.35 (5.90–6.99)$^{##}$	7.45 (6.63–8.20)**	7.50 (6.83–8.38)*	7.45 (6.41–8.04)**
IMT/D	0.08 (0.07–0.10)	0.08 (0.07–0.09)	0.09 (0.08–0.10)	0.10 (0.08–0.11)**	0.10(0.08–0.11)**	0.09 (0.08–0.11)**
SPV (mm/s)	90.00 (78.05–107.18)	91.50 (78.48–109.03)	89.50 (76.25–104.05)	79.85 (69.00–92.30)**	81.45 (70.78–100.33)**	78.73 (67.51–90.69)**
EDV (mm/s)	28.00 (23.58–32.00)	27.50 (22.13–30.90)	28.85 (24.55–33.00)$^{#}$	20.05 (16.00–24.18)**	18.50 (15.28–24.33)**	20.48 (17.60–24.19)$^{**,#}$
PI	1.47 (1.27–1.71)	1.64 (1.44–1.87)	1.39 (1.22–1.62)$^{##}$	1.70 (1.48–2.05)**	1.92 (1.65–2.28)**	1.55 (1.36–1.88)$^{**,##}$
RI	0.70 (0.66–0.73)	0.72 (0.69–0.75)	0.69 (0.65–0.72)$^{##}$	0.75(0.71–0.79)**	0.77(0.72–0.80)**	0.73 (0.69–0.77)$^{**,##}$

Normally distributed data were expressed as the mean ±SD, with differences examined using independent-sample t-tests. Data not normally distributed were shown as the median and IQR. Comparisons of these variables among groups were performed by the Mann–Whitney U-test. P-values are the outcome of the analysis of the independent-sample t-tests or Mann–Whitney U-test. Categorical data were expressed as numbers and the differences in the variables among the groups were examined using the chi-square test and Fisher's probabilities. *Significant difference ($P < 0.05$); **significant difference ($P < 0.01$) when compared with ≤60 years group, respectively. #Significant difference ($P < 0.05$); ##significant difference ($P < 0.01$) when compared with the males in the same age group, respectively. BMI: Body mass index; CYSC: Cystatin C; D: Carotid diameter; DBP: Diastolic blood pressure; EDV: End-diastolic velocities; eGFR: Estimated glomerular filtration rate; FBG: Fasting blood glucose; HDL: High-density lipoprotein; IMT/D: Carotid intima-medial thickness to diameter; IMT: Carotid intima-media thickness; IQR: Interquartile range; LDL: Low-density lipoprotein; PI: Pulsatile index; RI: Resistance index; SBP: Systolic blood pressure; SCr: Serum creatinine; SD: Standard deviation; SPV: Blood systolic peak velocities; TC: Total cholesterol; TG: Triglyceride; UA: Uric acid.

Supplementary Table 2: Clinical characteristics and vascular parameters based on tertiles of eGFR.

Items	eGFR, tertiles (mL/min per1.73 m^2)		
	<81.91 ($n = 139$)	81.91–95.85 ($n = 132$)	>95.85 ($n = 130$)
Age (years)	68.43 ±10.66	60.17 ±10.42[**]	49.03 ±8.70[**,##]
Male (%)	50.77	45.38	31.54
BMI (kg/m^2)	23.97 ±3.22	24.28 ±3.08	22.98 ±3.15[*,##]
SBP (mmHg)	135.44 ±18.76	131.71 ±20.37	126.87 ±19.20[**,#]
DBP (mmHg)	79.16 ±8.87	78.08 ±11.22	76.88 ±11.05
Cigarette smoking			
Never	108 (77.7)	95 (72.0)	105 (80.8)
Former	10 (7.2)	4 (3.0)	1 (0.8)
Current	21 (15.1)	33 (25.0)	24 (18.5)
TG (mmol/L)	1.07 (0.79–1.73)	1.24 (0.88–1.65)	0.85 (0.65–1.32)[**,##]
TC (mmol/L)	5.19 ±1.05	5.32 ±0.92	4.91 ±0.88[*,##]
HDL (mmol/L)	1.45 ±0.38	1.38 ±0.30	1.51 ±0.36[##]
LDL (mmol/L)	3.30 ±0.97	3.50 ±0.74	3.02 ±0.78[**,##]
FBG (mmol/L)	5.28 (4.94–5.64)	5.24 (4.98–5.56)	5.06 (4.83–5.43)[*,#]
SCr (μmol/L)	74.00 (64.00–84.25)	60.00 (55.00–70.00)[**]	50.50 (47.00–58.00)[**,##]
CYSC (mg/L)	1.00 (0.88–1.10)	0.84 (0.75–0.92)[**]	0.70 (0.63–0.80)[**,##]
UA (μmol/L)	327.44 ±80.53	300.87 ±73.19[**]	265.69 ±64.57[**,##]
IMT (mm)	0.69 (0.58–0.79)	0.62 (0.56–0.73)[**]	0.54 (0.49–0.59)[**,##]
D (mm)	7.50 (6.73–8.24)	7.00 (6.30–7.69)[**]	6.45 (5.85–7.30)[**,##]
IMT/D	0.09 (0.08–0.11)	0.09 (0.08–0.10)	0.08 (0.07–0.09)[**,##]
SPV (mm/s)	80.55 (69.65–91.95)	84.98 (72.66–102.00)	91.05 (78.65–108.98)[**,##]
EDV (mm/s)	20.58 (16.73–27.45)	22.68 (19.40–28.83)[*]	27.50 (23.80–31.54)[**,##]
PI	1.65 (1.39–1.97)	1.64 (1.38–1.97)	1.49 (1.28–1.71)[**,##]
RI	0.73 (0.69–0.78)	0.73 (0.68–0.76)	0.71 (0.67–0.74)[**,#]

Data are expressed as the mean ±SD or median and IQR. Differences between groups were examined using ANOVA or Kruskal–Wallis H Test. [*]Significant difference ($P < 0.05$);

Supplementary Table 3: Clinical characteristics and vascular parameters based on tertiles of serum CYSC concentration.

Items	Serum CYSC, tertiles (mg/L)		
	<0.77 ($n = 134$)	0.77–0.91 ($n = 140$)	>0.91 ($n = 127$)
Age (years)	51.04 ±9.88	58.56 ±11.30[**]	68.67 ±11.04[**,##]
Male (%)	25.89	47.50	49.07
BMI (kg/m^2)	22.65 ±2.93	23.94 ±2.74[**]	24.28 ±3.68[**]
SBP (mmHg)	126.13 ±19.62	131.36 ±19.48[*]	135.35 ±19.88[**]
DBP (mmHg)	76.05 ±11.31	78.49 ±10.64	78.61 ±8.85
Cigarette smoking, n (%)			
Never	114 (85.1)	97 (69.3)	97 (76.4)
Former	5 (3.7)	5 (3.6)	5 (3.9)
Current	15 (11.2)	38 (27.1)[**]	25 (19.7)[**]
TG (mmol/L)	0.87 (0.66–1.40)	1.07 (0.77–1.67)[*]	1.10 (0.79–1.59)[*]
TC (mmol/L)	5.21 ±0.99	5.19 ±0.95	5.08 ±0.94
HDL (mmol/L)	1.56 ±0.33	1.45 ±0.33[*]	1.40 ±0.37[**]
LDL (mmol/L)	3.27 ±0.88	3.30 ±0.85	3.31 ±0.86
FBG (mmol/L)	5.24 (4.87–5.53)	5.18 (4.95–5.43)	5.17 (4.83–5.56)
SCr (μmol/L)	54.00 (47.00–61.00)	62.00 (54.00–71.00)[**]	71.00 (61.00–82.00)[**,##]
eGFR (mL/min per 1.73 m^2)	99.25 (91.90–107.31)	88.00 (80.79–96.88)[**]	74.49 (63.70–84.10)[**,##]

UA (μmol/L)	260.60 ±65.20	297.56 ±66.75[**]	330.36 ±78.53[**,##]
IMT (mm)	0.55 (0.50–0.62)	0.59 (0.52–0.71)[**]	0.70 (0.61–0.80)[**,##]
D (mm)	6.43 (5.90–7.15)	7.00 (6.41–7.70)[**]	7.60 (6.90–8.30)[**,##]
IMT/D	0.08 (0.07–0.09)	0.09 (0.08–0.10)	0.10 (0.08–0.11)[**,##]
SPV (mm/s)	93.15 (81.20–111.00)	84.88 (75.39–98.88)[**]	80.03 (67.18–93.46)[**]
EDV (mm/s)	27.25 (23.35–33.00)	24.85 (20.41–30.00)[**]	20.00 (15.96–24.69)[**,##]
PI	1.56 (1.32–1.74)	1.53 (1.35–1.84)	1.69 (1.41–2.08)[**,##]
RI	0.72 (0.67–0.75)	0.71 (0.67–0.76)	0.75 (0.69–0.80)[**,##]

Data are expressed as the mean ±SD or median and IQR. Differences between groups were examined using ANOVA or Kruskal–Wallis H-test. [*]Significant difference ($P < 0.05$); [**]significant difference ($P < 0.01$) when compared with <0.77 mg/L group, respectively. [#]Significant difference ($P < 0.05$); [##]significant difference ($P < 0.01$) when compared with 0.77–0.91 mg/L group, respectively. ANOVA: Analysis of variance; BMI: Body mass index; CYSC: Cystatin C; D: Carotid diameter; DBP: Diastolic blood pressure; EDV: End-diastolic velocities; eGFR: Estimated glomerular filtration rate; FBG: Fasting blood glucose; HDL: High-density lipoprotein; IMT/D: Carotid intima-medial thickness to diameter; IMT: Carotid intima-media thickness; IQR: Interquartile range; LDL: Low-density lipoprotein; PI: Pulsatile index; RI: Resistance index; SBP: Systolic blood pressure; SCr: Serum creatinine; SD: Standard deviation; SPV: Blood systolic peak velocities; TC: Total cholesterol; TG: Triglyceride; UA: Uric acid.

Supplementary Table S4: Correlation of serum eGFR levels with basic characteristics and vascular parameters using r_p (Spearman's correlation coefficient).

Items	Total		Male		Female	
	r_p	P	r_p	P	r_p	P
Age (years)	−0.678[**]	0.000	−0.594[**]	0.000	−0.737[**]	0.000
BMI (kg/m^2)	−0.152[**]	0.003	0.001	0.989	−0.220[**]	0.001
Cigarette smoking	−0.024	0.641	−0.289[**]	0.000	−0.056	0.410
SBP (mmHg)	−0.202[**]	0.000	−0.118	0.129	−0.270[**]	0.000
DBP (mmHg)	−0.103[*]	0.042	−0.019	0.810	−0.157[*]	0.019
TG (mmol/L)	−0.155[**]	0.002	0.049	0.532	−0.307[**]	0.000
TC (mmol/L)	−0.126[*]	0.013	−0.018	0.818	−0.252[**]	0.000
HDL (mmol/L)	0.091	0.073	0.050	0.519	0.025	0.705
LDL (mmol/L)	−0.139[**]	0.006	−0.029	0.715	−0.242[**]	0.000
FBG (mmol/L)	−0.150[**]	0.003	−0.039	0.622	−0.197[**]	0.003
SCr (μmol/L)	−0.709[**]	0.000	−0.823[**]	0.000	−0.820[**]	0.000
CYSC (mg/L)	−0.739[**]	0.000	−0.680[**]	0.000	−0.757[**]	0.000

UA (μmol/L)	−0.378**	0.000	−0.273**	0.000	−0.426**	0.000
IMT (mm)	−0.449**	0.000	−0.395**	0.000	−0.448**	0.000
D (mm)	−0.375**	0.000	−0.176*	0.027	−0.466**	0.000
IMT/D	−0.203**	0.000	−0.334**	0.000	−0.105	0.142
SPV (mm/s)	0.253**	0.000	0.271**	0.001	0.274**	0.000
EDV (mm/s)	0.369**	0.000	0.305**	0.000	0.387**	0.000
PI	−0.168**	0.001	−0.092	0.247	−0.106	0.128
RI	−0.178**	0.001	−0.101	0.207	−0.147*	0.034

P values are from the ANOVA. $^*P < 0.05$. $^{**}P < 0.01$. ANOVA: Analysis of variance; BMI: Body mass index; CYSC: Cystatin C; D: Carotid diameter; DBP: Diastolic blood pressure; EDV: End-diastolic velocities; eGFR: Estimated glomerular filtration rate; FBG: Fasting blood glucose; HDL: High-density lipoprotein; IMT/D: Carotid intima-medial thickness to diameter; IMT: Carotid intima-media thickness; LDL: Low-density lipoprotein; PI: Pulsatile index; RI: Resistance index; SBP: Systolic blood pressure; SCr: Serum creatinine; SPV: Blood systolic peak velocities; TC: Total cholesterol; TG: Triglyceride; UA: Uric acid.

SupplementaryTable 5: Relationship between serum eGFR levels and vascular parameters using a stepwise multiple regression model.

	Model 1		Model 2		Model 3	
	Beta	*P*	Beta	*P*	Beta	*P*
Total						
IMT (mm)	−0.416**	0.000	−0.002	0.975	0.062	0.258
D (mm)	−0.141**	0.007	−0.141**	0.007	−0.116*	0.026
IMT/D	−0.240**	0.000	−0.100	0.154	−0.122	0.087
SPV (mm/s)	0.270**	0.000	0.073	0.272	0.056	0.412
EDV (mm/s)	0.297**	0.000	−0.104	0.085	−0.125*	0.037
PI	−0.154**	0.003	0.120	0.075	0.196**	0.002
RI	−0.049	0.352	0.100	0.155	0.104	0.146
Male						
IMT (mm)	−0.358**	0.000	0.034	0.657	0.081	0.270
D (mm)	−0.084	0.295	–	–	–	–
IMT/D	−0.218**	0.007	0.117	0.188	0.116	0.202
SPV (mm/s)	0.327**	0.000	0.327***	0.000	0.318**	0.000
EDV (mm/s)	0.236**	0.003	−0.100	0.244	−0.287***	0.004

Items	Model 1 Beta	P	Model 2 Beta	P	Model 3 Beta	P
PI	−0.100	0.209	0.217*	0.016	0.255**	0.005
RI	−0.070	0.379	0.205*	0.028	0.215*	0.020
Female						
IMT (mm)	−0.451**	0.000	−0.028	0.732	−0.006	0.939
D (mm)	−0.422**	0.000	−0.117	0.185	−0.056	0.507
IMT/D	−0.293**	0.000	−0.161	0.104	−0.160	0.111
SPV (mm/s)	0.257**	0.000	−0.027	0.778	−0.066	0.489
EDV (mm/s)	0.317**	0.000	−0.146	0.090	−0.121	0.163
PI	−0.128	0.066	0.106	0.286	−0.072	0.308
RI	−0.020	0.778	–	–	−0.011	0.877

Model 1: unadjusted model. Model 2: adjusted for age. Model 3: fully adjusted for age, gender, BMI, cigarette smoking, SBP, DBP, TG, TC, HDL, LDL, and FBG. Standardized coefficients and P values were outcomes from regression analyses. $^*P < 0.05$. $^{**}P < 0.01$. Beta: Standardized coefficients; BMI: Body mass index; D: Carotid diameter; DBP: Diastolic blood pressure; EDV: End-diastolic velocities; eGFR: Estimated glomerular filtration rate; FBG: Fasting blood glucose; HDL: High-density lipoprotein; IMT/D: Carotid intima-medial thickness to diameter; IMT: Carotid intima-media thickness; LDL: Low-density lipoprotein; PI: Pulsatile index; RI: Resistance index; SBP: Systolic blood pressure; SPV: Blood systolic peak velocities; TC: Total cholesterol; TG: Triglyceride.

Supplementary Table 6: Relationship between serum CYSC levels and vascular parameters using a stepwise multiple regression model.

Items	Model 1		Model 2		Model 3	
	Beta	P	Beta	P	Beta	P
Total						
IMT (mm)	0.425**	0.000	0.121*	0.024	0.053	0.326
D (mm)	0.120*	0.033	0.058	0.388	0.017	0.797
IMT/D	0.287**	0.000	0.189**	0.005	0.215**	0.002
SPV (mm/s)	−0.280**	0.000	−0.135	0.035	−0.111	0.093
EDV (mm/s)	−0.340**	0.000	−0.084	0.155	−0.024	0.696
PI	0.143*	0.010	−0.028	0.665	0.092	0.089
RI	0.023	0.687	−0.077	0.253	−0.082	0.233
Male						
IMT (mm)	0.385**	0.000	0.127	0.109	0.083	0.287
D (mm)	0.032	0.715	–	–	–	–
IMT/D	0.191*	0.031	−0.044	0.630	−0.043	0.647
SPV (mm/s)	−0.278**	0.001	−0.278**	0.001	−0.137	0.146
EDV (mm/s)	−0.289**	0.001	−0.089	0.315	−0.030	0.729

	Beta	P	Beta	P	Beta	P
PI	0.111	0.201	−0.076	0.417	−0.090	0.338
RI	0.088	0.314	−0.083	0.376	−0.096	0.317
Female						
IMT (mm)	0.438**	0.000	0.091	0.210	0.073	0.322
D (mm)	0.433**	0.000	0.208*	0.010	0.115	0.139
IMT/D	0.355**	0.000	0.355*	0.000	0.357**	0.000
SPV (mm/s)	−0.304**	0.000	−0.116	0.178	−0.064	0.482
EDV (mm/s)	−0.351**	0.000	−0.049	0.536	−0.035	0.664
PI	0.086	0.246	−0.080	0.379	0.033	0.652
RI	−0.020	0.784	–	–	−0.003	0.969

Model 1: unadjusted model. Model 2: adjusted for age. Model 3: fully adjusted for age, gender, BMI, cigarette smoking, SBP, DBP, TG, TC, HDL, LDL, and FBG. Standardized coefficients and P values were outcomes from regression analyses. $^*P < 0.05$. $^{**}P < 0.01$. Beta: Standardized coefficients; BMI: Body mass index; CYSC: Cystatin C; D: Carotid diameter; DBP: Diastolic blood pressure; EDV: End-diastolic velocities; FBG: Fasting blood glucose; HDL: High-density lipoprotein; IMT/D: Carotid intima-medial thickness to diameter; IMT: Carotid intima-media thickness; LDL: Low-density lipoprotein; PI: Pulsatile index; RI: Resistance index; SBP: Systolic blood pressure; SPV: Blood systolic peak velocities; TC: Total cholesterol; TG: Triglyceride.