Modified STROBE Statement—checklist of items that should be included in reports of observational studies (Cohort/Cross-sectional and case-control studies)

	Item No	Recommendation
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract **Yes**
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found **Yes**
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported **Yes**
Objectives	3	State specific objectives, including any prespecified hypotheses **Yes**
Methods		
Study design	4	Present key elements of study design early in the paper **Yes**
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection **Yes**
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up **Yes** *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls **Yes** *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants **Not applicable**
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable **Yes**
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). **Yes**
Bias	9	Describe any efforts to address potential sources of bias **Yes**
Study size	10	Explain how the study size was arrived at (if applicable) **Not applicable**
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why **Yes**

Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding **Yes**
		(*b*) Describe any methods used to examine subgroups and interactions **Yes**
		(*c*) Explain how missing data were addressed **Yes**
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed **Yes** *Case-control study*—If applicable, explain how matching of cases and controls was addressed **Not applicable** *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy **Not applicable**
		(*e*) Describe any sensitivity analyses **Not done**
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed **Yes**
		(c) **Use of a flow diagram Yes**
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders **Yes**
		(b) Indicate number of participants with missing data for each variable of interest **Yes**
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount) **Yes**
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time **Yes**
		Case-control study—Report numbers in each exposure category, or summary measures of exposure **Yes**
		Cross-sectional study—Report numbers of outcome events or summary measures **Not applicable**
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included **Yes**

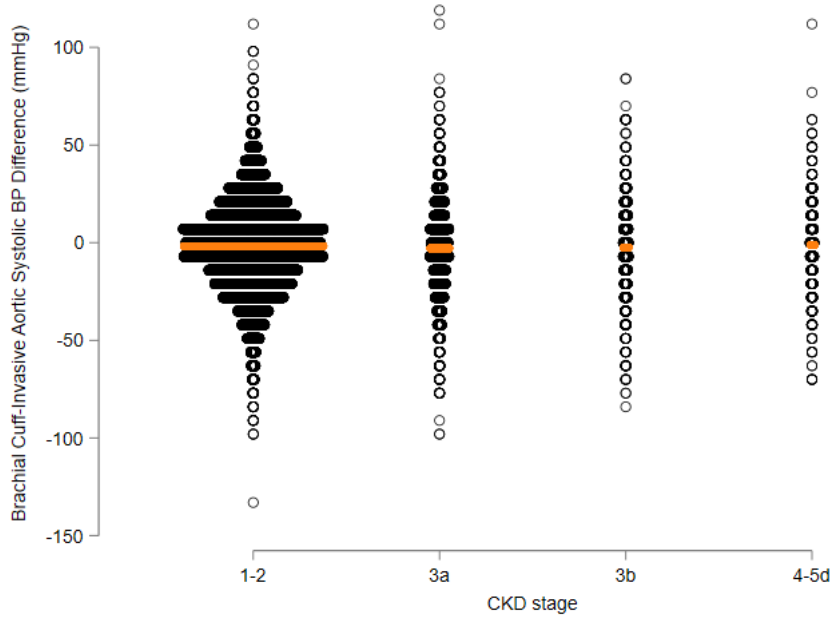
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses **Yes**
Discussion		
Key results	18	Summarise key results with reference to study objectives **Yes**
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias **Yes**
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence **Yes**
Generalisability	21	Discuss the generalisability (external validity) of the study results **Yes**

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

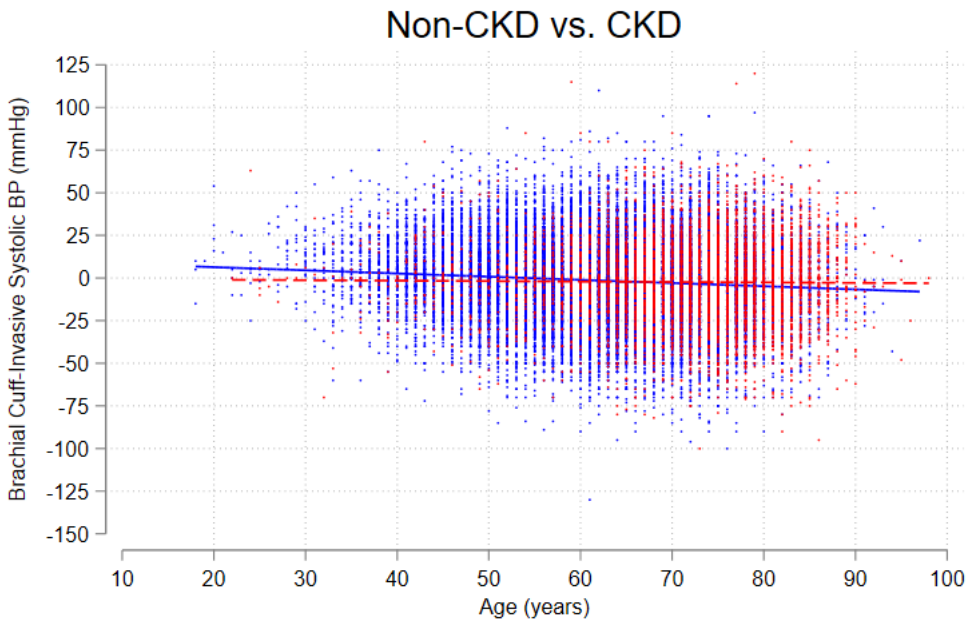
Supplement

Figure S1



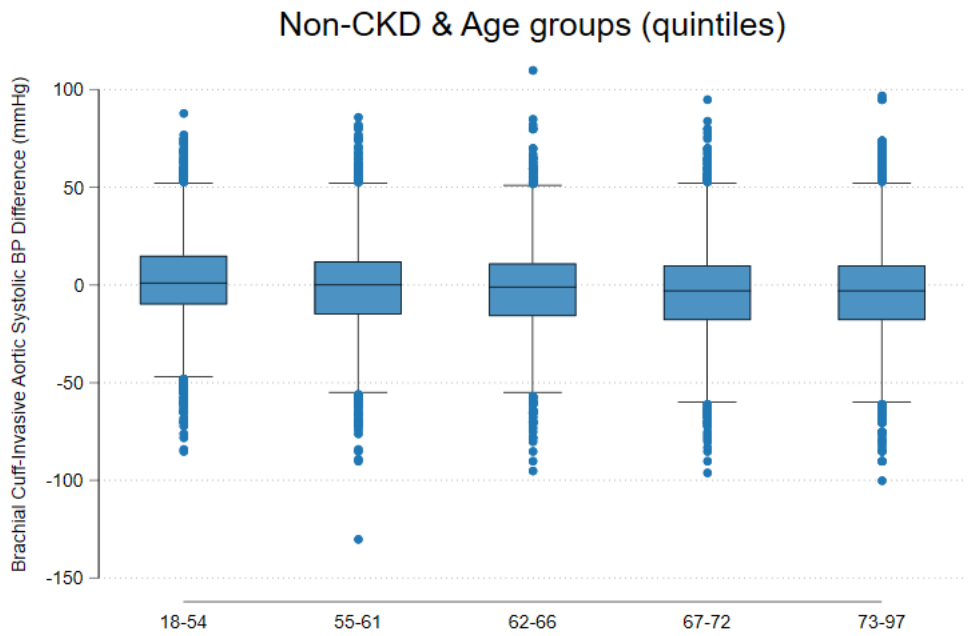
Dot and mean (orange bar) plot for the difference (Cuff-Invasive Systolic BP) for all patients according to CKD stage (n=39,866).
Linear regression with CKD stage 1-2 as reference (n=33,261) with the difference (Cuff-Invasive Systolic BP) as outcome with 95% confidence interval (95% CI) yielded:
β (CKD 3a): -1.1 (-1.7; -0.4) mmHg; *P*=0.002 (n=4,538)
β (CKD 3b): -0.6 (-1.9; 0.6) mmHg; *P*=0.31 (n=1,290)
β (CKD 4-5d): 0.6 (-1.0; 2.2) mmHg; *P*=0.44 (n=777)
The difference (CKD3a vs. CKD4-5d) was significant with mean difference (95% CI): 1.7 (0.01-3.3) mmHg; *P*=0.049.
All other comparisons were not significant.

Figure S2



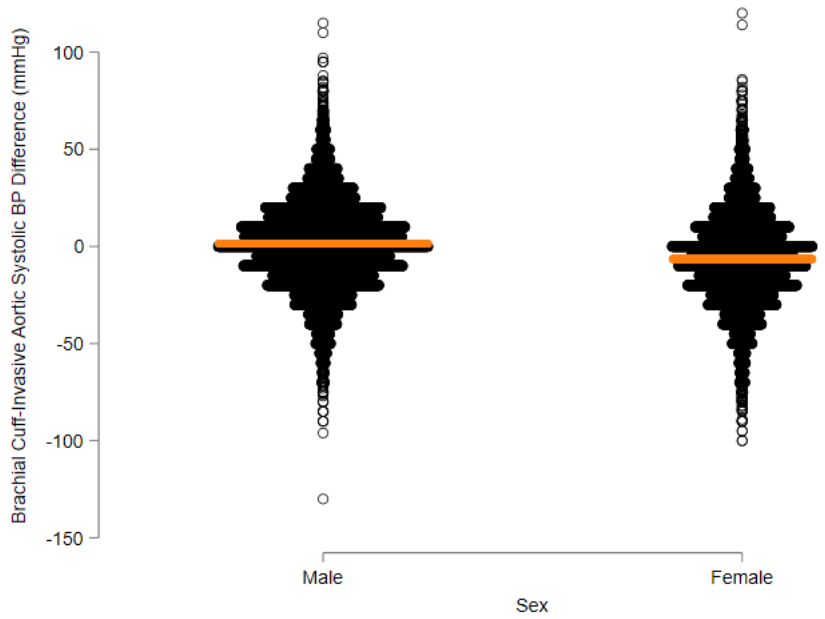
CKD patients are shown as red dots (n=6,605) and non-CKD patients are shown as blue dots (n=33,261) with fitted regression lines. Linear regression in all patients with the difference (Cuff-Invasive Systolic BP) as outcome yielded with 95% confidence interval (95% CI) β(age): -0.16 (-0.18; -0.14) mmHg; P<0.001. Test for interaction (CKD vs. Non-CKD) was significant with slope difference (95% CI): 0.16 (0.10-0.22) mmHg; P<0.001. Thus, we cannot assume the same slope in CKD and Non-CKD patients. Regression in CKD was not significant whereas non-CKD was significant. CKD-stratified analysis with 95% CI yielded:
CKD: β(age) = -0.03 (-0.08-0.03) mmHg; P=0.36
Non-CKD: β(age) = -0.19 (-0.21; -0.16) mmHg; P<0.001

Figure S3



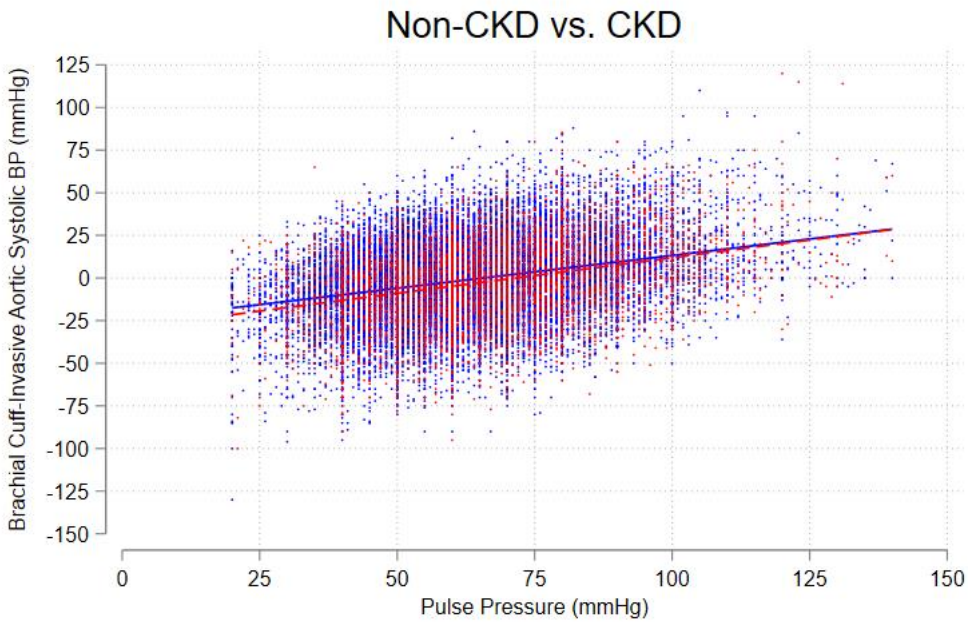
Boxplot showing the difference (Cuff-Invasive Systolic BP) according to age quintiles for non-CKD patients (n=33,261).
In non-CKD patients, linear regression with the difference (Cuff-Invasive Systolic BP) as outcome and age quintiles with age group (18-54 years) (n=7,299) as reference yielded (95% confidence interval):
β (55-61 years): -2.6 (-3.4; -1.9) mmHg; *P*<0.001 (n=7,018)
β (62-66 years): -3.7 (-4.4; -3.0) mmHg; *P*<0.001 (n=6,211)
β (67-72 years): -4.7 (-5.0; -4.0) mmHg; *P*<0.001 (n=6,692)
β (73-97 years): -4.8 (-5.6; -4.1) mmHg; *P*<0.001 (n=6,041)
Other pairwise comparisons:
(55-61) vs. (62-66): 1.1 (0.3-1.8) mmHg; *P*=0.004
(55-61) vs. (67-72): 2.0 (1.3-2.8) mmHg; *P*<0.001
(55-61) vs. (73-97): 2.2 (1.5-2.9) mmHg; *P*<0.001
(62-66) vs. (67-72): 1.0 (0.2-1.7) mmHg; *P*=0.011
(62-66) vs. (73-97): 1.1 (0.4-1.9) mmHg; *P*=0.004
(67-72) vs. (73-97): 0.2 (-0.6; 0.9) mmHg; *P*=0.68

Figure S4



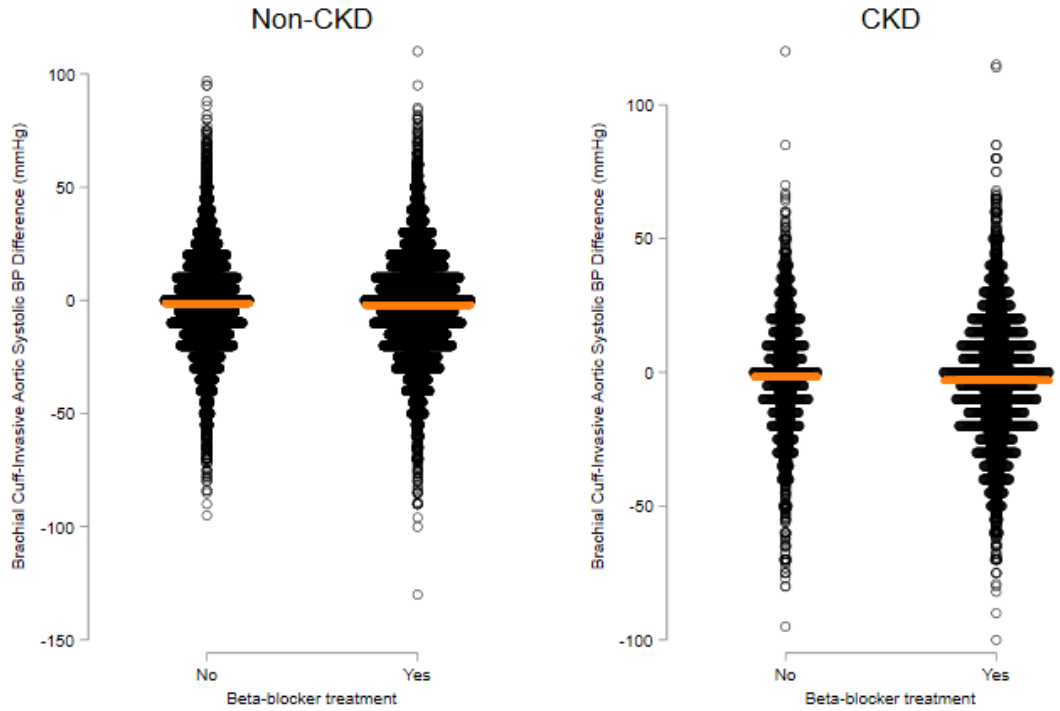
Dot and mean (orange bar) plot for males (n=23,259) and females (n=16,607) regardless of CKD status.
Mean difference (Cuff-Invasive Systolic BP) with 95 % confidence interval (95% CI) was:
Males: 1.6 (1.3-1.8) mmHg
Females: -6.3 (-6.6; -6.0) mmHg
Mean difference (95% CI) between males and females was: 7.9 (7.4-8.3) mmHg; $P<0.001$ (Student's t-test).

Figure S5



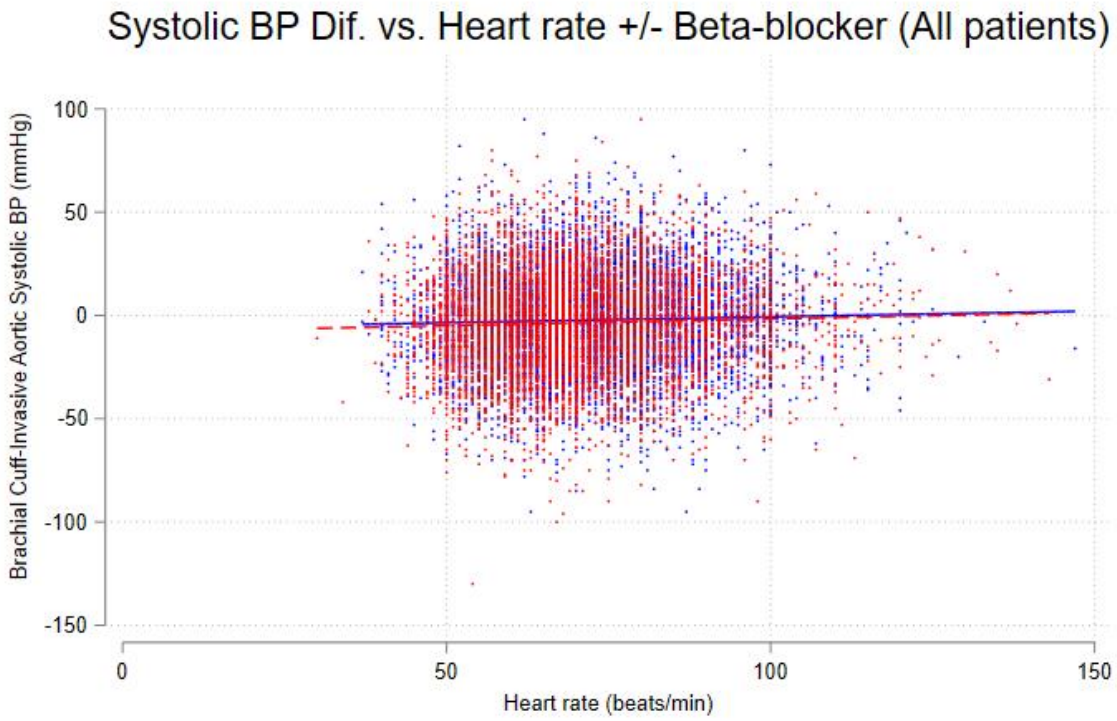
CKD patients are shown as red dots (n=6,605) and non-CKD patients as blue dots (n=33,261) with fitted regression lines and brachial cuff pulse pressure (PP) on the x-axis. Linear regression in all patients with the difference (Cuff-Invasive Systolic BP) as outcome yielded with 95% confidence interval (95% CI): β(PP) = 0.39 (0.37-0.40) mmHg; P<0.001. Test for interaction (CKD vs. Non-CKD) was significant with slope difference (95% CI): 0.032(0.001-0.063) mmHg; P=0.04. Thus, we cannot assume the same slope in CKD and Non-CKD patients. CKD-stratified analysis yielded (95% CI):
CKD: β(PP) = 0.38 (0.37-0.40) mmHg; P<0.001
Non-CKD: β(PP) = 0.42 (0.39-0.45) mmHg; P<0.001

Figure S6



Dot and mean (orange bar) plot for the difference (Cuff-Invasive Systolic BP) in non-CKD (n=33,261) and CKD patients (n=6,605) according to beta-blocker treatment.

Figure S7



Beta-blocker treated patients are shown as red dots (n=8,264) and patients not on beta-blocker treatment are shown as blue dots (n=8,053) with fitted regression lines. Information on heart rate was missing in 59% (n=23,549 patients). Linear regression in all patients (n=16,317) with the difference (Cuff-Invasive Systolic BP) as outcome with 95% confidence interval yielded β (heart rate): 0.06 (0.04-0.09) mmHg; P<0.001.
Test for interaction (beta-blocker treated vs. non-beta-blocker treated) was non-significant. Thus, overall there was the same relationship between systolic BP difference (Brachial Cuff-Invasive Systolic BP) and heart rate regardless of beta-blocker treatment.
Beta-blocker treated had significantly lower heart rate (mean±SD: 70±13 vs. 72±13 beats per minute) with mean difference 2.4(2.0-2.8) beats per minute; P<0.0001 (n=16,317). This was also the case in non-CKD patients with mean difference 2.4 (1.9-2.8) beats per minute; P<0.001 (n=13,844) and CKD patients with mean difference 3.1 (2.0-4.2) beats per minute; P<0.0001 (n=2,473).

Table S1

All patients (n=39,866)

Beta-blocker treatment		**Brachial Office Systolic BP** (Mean±SD)	**Invasive Aortic Systolic BP** (Mean±SD)	**Brachial minus Aortic Systolic BP** (95% CI)
Yes (n=22,701)	mmHg	144±20	146±24	-2.1 (-2.4; -1.8)
No (n=17,165)	mmHg	142±19	143±22	-1.2 (-1.5; -0.9)
Mean difference (95% CI)	mmHg	1.8 (1.4; 2.1) *P*<0.0001	2.6 (2.1; 3.1) *P*<0.0001	-0.8 (-0.4; -1.3) *P*=0.0001

Table S2

Non-CKD patients (n=33,261)

Beta-blocker treatment		**Brachial Office Systolic BP** (Mean±SD)	**Invasive Aortic Systolic BP** (Mean±SD)	**Brachial minus Aortic Systolic BP** (95% CI)
Yes (n=18,381)	mmHg	143±20	145±23	-1.9 (-2.2; -1.6)
No (n=14,880)	mmHg	142±19	143±22	-1.2 (-1.5; -0.8)
Mean difference (95% CI)	mmHg	1.8 (1.3; 2.2) *P*<0.0001	2.5 (2.0; 3.0) *P*<0.0001	-0.7 (-0.2; -1.2) *P*=0.003

Table S3

CKD patients (n=6,605)

Beta-blocker treatment		**Brachial Office Systolic BP** (Mean±SD)	**Invasive Aortic Systolic BP** (Mean±SD)	**Brachial minus Aortic Systolic BP** (95% CI)
Yes (n=4,320)	mmHg	145±21	148±24	-2.8 (-3.5; -2.1)
No (n=2,285)	mmHg	144±20	146±23	-1.5 (-2.4; -0.6)
Mean difference (95% CI)	mmHg	1.0 (-0.02; 2.0) *P*=0.054	2.3 (1.2; 3.5) *P*=0.0001	-1.3 (-0.2; -2.5) *P*=0.02

Significantly more patients were on beta-blocker treatment in the CKD group (65% vs. 55%; P<0.001 in Chi^2-test). Patients on beta-blocker treatment had a significantly higher office and aortic systolic BP (see Tables S2-S3). Overall, we found that beta-blocker treatment was associated with a significantly greater difference in brachial minus aortic systolic BP indicating a higher aortic systolic BP. Mean difference in brachial minus aortic systolic BP between beta-blocker treated and non-beta-blocker treated with 95% confidence interval was -0.8 (-0.4; -1.3) mmHg; *P*=0.0001 (all patients regardless of CKD status). Analyses stratified for CKD as shown in Tables S1-S3 were similar except for the borderline significant difference in brachial office systolic BP between beta-blocker treated and non-beta-blocker treated in the CKD group (Table S3).

Table S4

Hazard ratios Complete Cases (non-imputed data) with 95% CI for the Association between Office or Aortic Systolic BP and the Incidence of Stroke, MI, and All-Cause Mortality

		All (n=39,866)		Patients with eGFR≥60 ml/min/1.73 m^2 (n=33,261)		Patients with eGFR<60 ml/min1.73 m^2 (n=6,605)	
Outcome		**Office Systolic BP**	**Aortic Systolic BP**	**Office Systolic BP**	**Aortic Systolic BP**	**Office Systolic BP**	**Aortic Systolic BP**
		HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Stroke							
	Crude	# (*P*=0.006)	# (*P*=0.04)	1.15 (1.11-1.18)§	1.10 (1.07-1.13)§	1.055 (1.004-1.109)†	1.040 (0.995-1.087)
	Adjusted*	1.08 (1.05-1.11§	1.06 (1.03-1.09)§	1.09 (1.05-1.12)§	1.06 (1.03-1.09)§	1.059 (1.004-1.118)†	1.051 (1.003-1.102)†
MI	**Crude**	1.08 (1.05-1.10)§	1.08 (1.06-1.10)§	1.06 (1.03-1.09)§	1.07 (1.04-1.09)§	1.10 (1.05-1.15)§	1.09 (1.05-1.13)§
	Adjusted*	# (*P*=0.01)	1.05 (1.02-1.07)§	1.01 (0.98-1.04)	1.04 (1.01-1.07)‡	1.08 (1.03-1.13)‡	1.07 (1.03-1.12)‡
All-cause mortality	**Crude**						
	≤110	1.27 (1.14-1.41)§	1.12 (1.02-1.23)†	1.18 (1.03-1.34)†	1.06 (0.94-1.18)	1.35 (1.13-1.60)‡	1.26 (1.08-1.48)‡
	111-130	1	1	1	1	1	1
	131-140	1.02 (0.95-1.10)	# (*P*=0.006)	1.03 (0.94-1.12)	1.01 (0.92-1.10)	0.97 (0.86-1.09)	0.90 (0.79-1.03)
	141-160	# (*P*=0.002)	# (*P*<0.001)	1.15 (1.06-1.24)§	1.11 (1.03-1.20)‡	0.93 (0.84-1.04)	0.93 (0.83-1.04)
	161-180	# (*P*<0.001)	# (*P*<0.001)	1.37 (1.25-1.50)§	1.28 (1.17-1.40)§	0.95 (0.83-1.08)	1.02 (0.90-1.16)
	>180	1.77 (1.58-1.97)§	# (*P*<0.001)	1.69 (1.47-1.95)§	1.43 (1.26-1.61)§	1.46 (1.22-1.75)§	1.08 (0.92-1.28)
	Adjusted*						
	≤110	1.32 (1.19-1.47)§	1.16 (1.05-1.27)‡	1.25 (1.09-1.44)‡	1.16 (1.03-1.30)†	1.36 (1.13-1.63)†	1.187 (1.005-1.402)†
	111-130	1	1	1	1	1	1
	131-140	0.94 (0.88-1.01)	0.90 (0.83-0.97)‡	0.94 (0.86-1.02)	0.89 (0.81-0.98)†	0.96 (0.85-1.09)	0.92 (0.80-1.05)
	141-160	0.942 (0.883-1.005)	0.93 (0.87-0.99)†	0.95 (0.88-1.03)	0.9224 (0.8512-0.9996)†	0.90 (0.81-1.01)	0.93 (0.83-1.05)
	161-180	0.96 (0.89-1.04)	0.94 (0.87-1.01)	0.99 (0.90-1.09)	0.92 (0.84-1.01)	0.89 (0.77-1.02)	0.94 (0.82-1.08)
	>180	1.16 (1.03-1.30)†	0.98 (0.88-1.09)	1.05 (0.90-1.22)	0.93 (0.81-1.06)	1.34 (1.11-1.63)‡	1.04 (0.87-1.24)

Results are presented for all participants and stratified by CKD status. Results for stroke and MI are presented per 10 mm Hg difference. Results for all-cause mortality are presented per blood pressure category in comparison to the reference category (111–130 mm Hg).

† *P*<0.05; ‡ *P*<0.01; § *P*<0.001

# Indicates that the interaction term eGFR<60 ml/min x office systolic BP/aortic systolic BP was significant

BP: Blood pressure, 95% CI: 95% confidence interval, eGFR: Estimated glomerular filtration rate, HR: Hazard ratio, MI: Myocardial infarction.

*) Adjusted models are based on patients without missing covariate data (non-imputed data), using patients with complete data (n=37,316 hereof n=6010 with eGFR<60 ml/min/1.73m^2 due to missing covariate values for BMI and smoking). Covariates included in the adjusted models:

Stroke: Age, sex, smoking (never, former, active), number of diseased vessels (none, diffuse coronary atherosclerosis without significant (>50%) stenosis/1, 2, or 3

vessel disease, atrial fibrillation (yes/no), diabetes (yes/no), statin treatment (yes/no), antiplatelet treatment (yes/no), antihypertensive drugs prescribed (0,1,2 or >2), BMI category (kg/m^2): <18.5 (underweight), 18.5-24.9 (normal), 25-29.9 (overweight), 30-34.9 (class 1 obesity), 35-39.9 (class 2 obesity), ≥40 (class III obesity)

MI: Age, sex, smoking (never, former, active), number of diseased vessels (none, diffuse coronary atherosclerosis without significant (>50%) stenosis/1, 2, or 3 vessel disease, diabetes (yes/no), hypertension (yes/no), statin treatment (yes/no), antiplatelet treatment (yes/no), BMI category (kg/m^2): <18.5 (underweight), 18.5-24.9 (normal), 25-29.9 (overweight), 30-34.9 (class 1 obesity), 35-39.9 (class 2 obesity), ≥40 (class 3 obesity)

All-cause mortality: Age, sex, smoking (never, former, active), modified Charlson comorbidity index (0/1/2/>2), number of diseased vessels (none, diffuse coronary atherosclerosis without significant (>50%) stenosis/1, 2, or 3 vessel disease, BMI category (kg/m^2): <18.5 (underweight), 18.5-24.9 (normal), 25-29.9 (overweight), 30-34.9 (class 1 obesity), 35-39.9 (class 2 obesity), ≥40 (class III obesity)

The unstratified models are additionally adjusted for eGFR<60 or eGFR<60 ml/min/1.73m^2