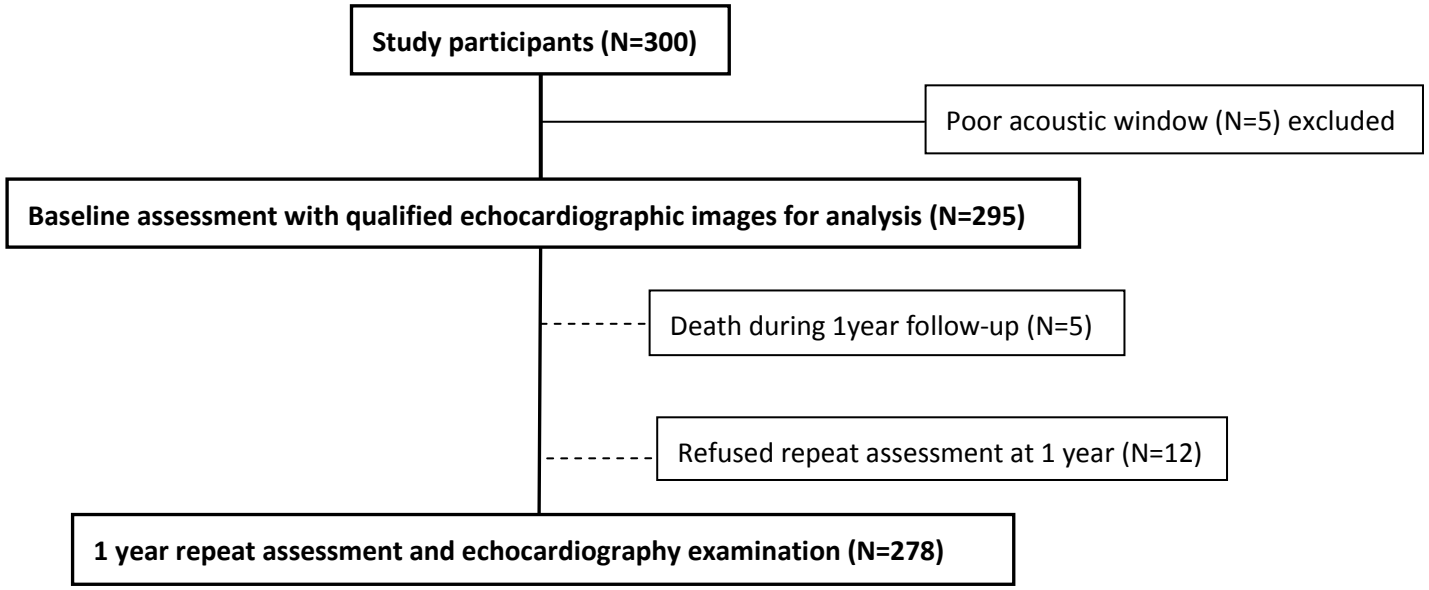
Figure S1. Study recruitment flow chart.



Supplemental Appendix

Table S1. Comparisons of clinical and biochemical characteristics at baseline and 1 year (N=278).

	Baseline	1 year	*P*
Systolic blood pressure, mmHg	128 ± 19	133 ± 20	<0.001
Diastolic blood pressure, mmHg	77 ± 11	77 ± 12	0.9
Hemoglobin, g/dL	12.0 ± 2.1	11.9 ± 2.2	0.09
Hematocrit, %	35.8 ± 5.9	36.0 ± 6.0	0.5
Fasting glucose, mg/dL	105 ± 36	108 ± 34	0.2
Serum albumin, g/dL	4.19 ±0.35	4.11 ±0.37	<0.001
Serum adjusted calcium, mg/dL	9.40 ± 0.40	9.32 ± 0.48	0.003
Serum phosphate, mg/dL	3.78 ± 0.77	3.87 ± 0.96	0.05
Total cholesterol, mg/dL	180± 40	175 ± 38	0.02
Triglyceride, mg/dL	135 ± 88	130 ± 76	0.3

Continuous data are expressed as mean ± SD.

Table S2. Characteristics of study subjects stratified by chronic kidney disease stages.

	Stage 3a (n=61)	Stage 3b (n=77)	Stage 4&5 (n=140)	*P*
Clinical data -				
Age, years	55.7 ± 9.81	60.0 ± 10.2	61.4 ± 9.61	0.001
Gender (M/F)	36 / 25	43 / 34	77 / 63	0.9
Diabetes mellitus, n (%)	15 (24.6)	29 (37.7)	71 (50.7)	0.002
Smoking status, n (%)				
- Current smoker	4 (6.6)	8 (10.4)	17 (12.1)	0.8
- Non-smoker	45 (73.8)	55 (71.4)	97 (69.3)	
- Ex-smoker	12 (19.7)	14 (18.2)	26 (18.6)	
Body mass index, kg/m^2	25.3 ± 3.6	26.0 ± 4.3	25.7 ± 4.6	0.7
Background coronary artery disease, n (%)	2 (3.3)	5 (6.5)	19 (13.6)	0.04

Background heart failure, n (%)	0 (0)	2 (2.6)	6 (4.3)	0.2
Systolic blood pressure, mmHg	128 ± 18	123 ± 15	131 ± 21	0.02
Diastolic blood pressure, mmHg	81 ± 11	76 ± 10	76 ±12	0.02
Biochemical data -				
Hemoglobin, g/dL	13.4 ± 1.8	12.8 ± 1.9	11.0 ± 1.8	< 0.001
Serum albumin, g/dL	4.31 ± 0.23	4.18 ± 0.34	4.13 ± 0.38	0.002
Serum adjusted calcium, mg/dL	9.40 ± 0.28	9.52 ± 0.36	9.36 ± 0.48	0.06
Serum phosphate, mg/dL	3.35 ± 0.59	3.47 ± 0.71	4.12 ± 0.68	< 0.001
Fasting glucose, mg/dL	98 ± 22	108 ± 35	106 ± 41	0.2
Fasting low density lipoprotein	110 ± 28	107 ± 32	99 ± 38	0.08

cholesterol, mg/dL				
Medication Use, n (%)				
Calcium channel blockers	27 (44.3)	45 (58.4)	111 (79.3)	<0.001
Beta-blockers	25 (41)	42 (54.5)	75 (53.6)	0.2
Angiotensin converting enzyme inhibitors/angiotensin receptor antagonists	53 (86.9)	62 (80.5)	108 (77.1)	0.3

Continuous data are expressed as mean ± SD.

Supplemental Appendix

Table S3. Multiple logistic regression analysis of 'progressors' in various cardiac structural and functional parameters in relation to baseline estimated glomerular filtration rate as a continuous variable.

Multiple logistic regression models	Adjusted odds ratio (95% confidence intervals)	*P*-value
'Progressor' of LVMi		
- Age and sex-adjusted	0.98 (0.96 - 0.99)	0.005
- Plus baseline LVMi	0.97 (0.96 - 0.99)	0.003
- Adjusted model	0.97 (0.96 – 0.99)	0.003
- Fully adjusted model	0.98 (0.96 – 1.00)	0.01
'Progressor' of LVVi		
- Adjusted for age and sex	0.98 (0.96 - 0.99)	0.008
- Plus baseline LVMi + LVVi	0.98 (0.96 - 0.99)	0.007
- Adjusted model + baseline LVVi	0.98 (0.96 – 1.00)	0.039
- Fully adjusted model + baseline LVVi	0.98 (0.96 – 1.00)	0.035
'Progressor' of LAVi		
- Adjusted for age and sex	0.98 (0.96 - 0.99)	0.005
- Plus baseline LVMi and LAVi	0.98 (0.96 - 0.99)	0.01
- Adjusted model + baseline LAVi	0.99 (0.97 – 1.00)	0.1
- Fully adjusted model + baseline LAVi	0.99 (0.97 – 1.01)	0.2
'Progressor' of Sm		
- Age and sex-adjusted	1.01 (0.99 - 1.03)	0.2
- Plus baseline LVMi + Sm	1.01 (0.99 - 1.03)	0.2
- Adjusted model + baseline Sm	1.01 (0.99 – 1.02)	0.5
- Fully adjusted model + baseline Sm	1.01 (0.99 – 1.03)	0.5
'Progressor' of ejection fraction		
- Age and sex-adjusted	1.00 (0.99 - 1.02)	0.9
- Plus baseline LVMi + ejection fraction	1.00 (0.98 - 1.02)	0.8
- Adjusted model + baseline ejection	1.00 (0.98 – 1.02)	0.7

fraction		
- Fully adjusted model + baseline ejection fraction	1.01 (0.99 – 1.03)	0.5
'Progressor' of mwFS		
- Age and sex-adjusted	1.00 (0.99 – 1.02)	0.9
- Plus baseline LVMi + mwFS	1.01 (0.99 – 1.02)	0.5
- Adjusted model + baseline mwFS	1.00 (0.98 – 1.02)	1.0
- Fully adjusted model + baseline mwFS	1.00 (0.98 – 1.02)	0.8
'Progressor' in diastolic dysfunction grade†		
- Age and sex-adjusted	0.97 (0.95 - 0.99)	0.007
- Plus baseline LVMi + diastolic function grade	0.97 (0.95 - 0.99)	0.003
- Adjusted model + baseline diastolic function grade	0.97 (0.94 – 0.99)	0.005
- Fully adjusted model + baseline diastolic function grade	0.97 (0.95 – 0.99)	0.014

Adjusted model – adjusted for known factors associated with LV abnormalities including age, gender, diabetes, background coronary artery disease, baseline systolic blood pressure, hemoglobin, serum albumin, LDL-cholesterol, baseline LVMi as well as change in systolic blood pressure over 1 year.

Fully adjusted model – adjusted for all factors above, plus medications including use of renin-angiotensin aldosterone system blockers, beta-blockers, calcium channel blockers and diuretics.

[a]Progressor' was defined as those in the upper 50th percentile for changes in LVMi, LVVi or LAVi over 1 year, and those with changes over 1 year in the lower 50th percentile for Sm and ejection fraction.

[b]Progressor' in diastolic dysfunction grade was defined as deterioration in diastolic function over 1 year by 1 or more grades according to the diastolic dysfunction grading by the American Society of Echocardiography using a combination of

echocardiographic parameters including LAVi, average of septal and lateral Em, and E/Em ratio. Subjects with already the most severe form of diastolic dysfunction (grade III) at baseline were not considered in the diastolic dysfunction progression analysis. LVMi, left ventricular volume index; LVV, left ventricular volume index; LAVi, left atrial volume index; Sm, peak systolic mitral annular velocity; mwFS, midwall fractional shortening; Em, early diastolic mitral annular velocity; E/Em, ratio of peak early transmitral flow velocity to early diastolic mitral annular velocity.