Supplementary Table S1. Characteristic of subjects (longitudinal analysis)

| | All subjects | category based on the serum concentration of TSH | | | | [a]p value |
		below-normal	lower-normal	higher-normal	above-normal	
Subjects	7,609	332	5,927	1,111	239	
[b]Age (years)	52.8 ± 10.1	51.3 ± 9.2	52.1 ± 9.8	55.9 ± 11.0	57.8 ± 10.3	<0.001
Men (%)	68.7	69.3	70.3	61.3	62.5	<0.001
Obesity (%)	23.2	20.8	23.9	19.8	22.5	0.02
BMI (Kg / m²)	23.0 ± 3.3	22.8 ± 3.1	23.0 ± 3.3	22.6 ± 3.5	22.8 ± 3.3	<0.01
Serum TSH (mU/L)	1.69 ± 1.16	0.39 ± 0.15	1.35 ± 0.47	3.05 ± 0.49	5.78 ± 2.38	<0.001
Systolic blood pressure (mmHg)	124.3 ± 18.8	123.2 ± 17.7	124.5 ± 18.8	123.3 ± 19.2	125.1 ± 18.4	0.13
Diastolic blood pressure (mmHg)	78.2 ± 11.5	77.4 ± 10.7	78.4 ± 11.5	77.4 ± 11.7	78.6 ± 11.3	0.02
Serum LDL cholesterol (mg/dL)	120.2 ± 29.5	117.2 ± 32.8	120.2 ± 29.3	120.9 ± 29.4	121.0 ± 28.9	0.25
Serum HDL cholesterol (mg/dL)	61.9 ± 15.7	62.5 ± 16.5	61.6 ± 15.6	63.6 ± 15.8	63.3 ± 15.5	<0.001
Serum triglyceride (mg/dL)	105.4 ± 72.4	99.2 ± 60.7	105.9 ± 74.3	105.4 ± 65.0	102.0 ± 54.7	0.35
Serum uric acid (mg/dL)	5.5 ± 1.3	5.4 ± 1.3	5.5 ± 1.3	5.4 ± 1.3	5.4 ± 1.2	<0.01
Serum fasting blood glucose (mg/dL)	101.7 ± 17.0	101.2 ± 13.8	101.8 ± 17.1	101.9 ± 17.6	100.1 ± 14.2	0.44
Proteinuria (%)	6.5	4.8	6.8	6.3	2.5	0.03
Hematuria (%)	14.2	13.6	14.3	13.7	16.3	0.74

eGFR (mL/min/1.73 m²)	75.4 ± 10.7	78.3 ± 11.4	75.7 ± 10.8	73.4 ± 9.7	73.3 ± 9.9	<0.001
Medication						
Hypertension (%)	14.5	12.3	14.3	16.3	13.3	0.22
Dyslipidemia (%)	9.5	9.0	9.3	9.9	13.3	0.20
Diabetes mellitus (%)	3.1	2.1	3.1	4.0	2.5	0.26
Hyperuricemia (%)	4.6	3.0	4.6	4.9	5.4	0.49

[a]To compare among four categories, one-way analysis of variance for values and chi-square test for proportion were performed. p value of less than 0.05 was considered to be statistically significant.

[b]Continuous variables are expressed as mean ± standard deviation. Categorical values are expressed as number (percentage).

BMI = body mass index; TSH = thyroid stimulating hormone; LDL = low-density lipoprotein; HDL = high-density lipoprotein; eGFR = estimated glomerular filtration rate

Supplementary Table S2. Association of serum TSH concentration with prevalence of eGFR <45 mL/min./1.73 m^2

	Number of eGFR <45 mL/min./1.73 m^2 /total	[a] Model 0 OR (95%CI)	[c]p value	[b]Model 1 OR (95%CI)	p value
below-normal TSH (<0.54 (mU/L))	4/651	0.50 (0.19-1.36)	0.18	0.81 (0.29-2.26)	0.68
lower-normal TSH (0.54-2.40)	150/12,451	1.000 (reference)		1.000 (reference)	
higher-normal TSH (2.41-4.26)	67/2,643	2.14 (1.60-2.86)	<0.001	1.32 (0.95-1.83)	0.10
above-normal TSH (>4.26)	19/645	2.49 (1.54-4.04)	<0.001	1.10 (0.63-1.92)	0.73

[a]Model 0: Unadjusted

[b]Model 1: Adjusted for age, sex, obesity, hypertension, dyslipidemia, hyperuricemia, hyperglycemia, proteinuria, and hematuria.

[c]p-value of less than 0.05 was considered to be statistically significant

TSH = thyrotropin; CKD = chronic kidney disease; OR = odd ratio; CI = confidence interval

Supplementary Table S3. Comparison of the change in eGFR among four TSH category groups

	Number	[a]change of eGFR (%)	eGFR in 2013 (mL/min./1.73m^2)	eGFR in 2016 (mL/min./1.73m^2)
below-normal TSH (<0.54 (mU/L))	332	3.2 ± 9.5	78.3 ± 11.4	75.4 ± 11.1
lower-normal TSH (0.54-2.40)	5,927	1.8 ± 9.1	75.7 ± 10.8	74.2 ± 11.2
higher-normal TSH (2.41-4.26)	1,111	1.3 ± 8.8	73.4 ± 9.7	72.2 ± 10.2
above-normal TSH (> 4,26)	239	1.3 ± 8.3	73.3 ± 9.9	72.4 ± 11.5

[a]Change of eGFR was calculated as a following equation: (eGFR in 2016 – eGFR in 2013) / eGFR in 2013

Values are expressed as number or mean ± standard deviation.

eGFR = estimated glomerular filtration rate; SD = standard deviation; TSH = thyrotropin