Supplementary Information for: Predictors of chronic kidney disease in type 1 diabetes: a longitudinal study from the AMD Annals initiative.

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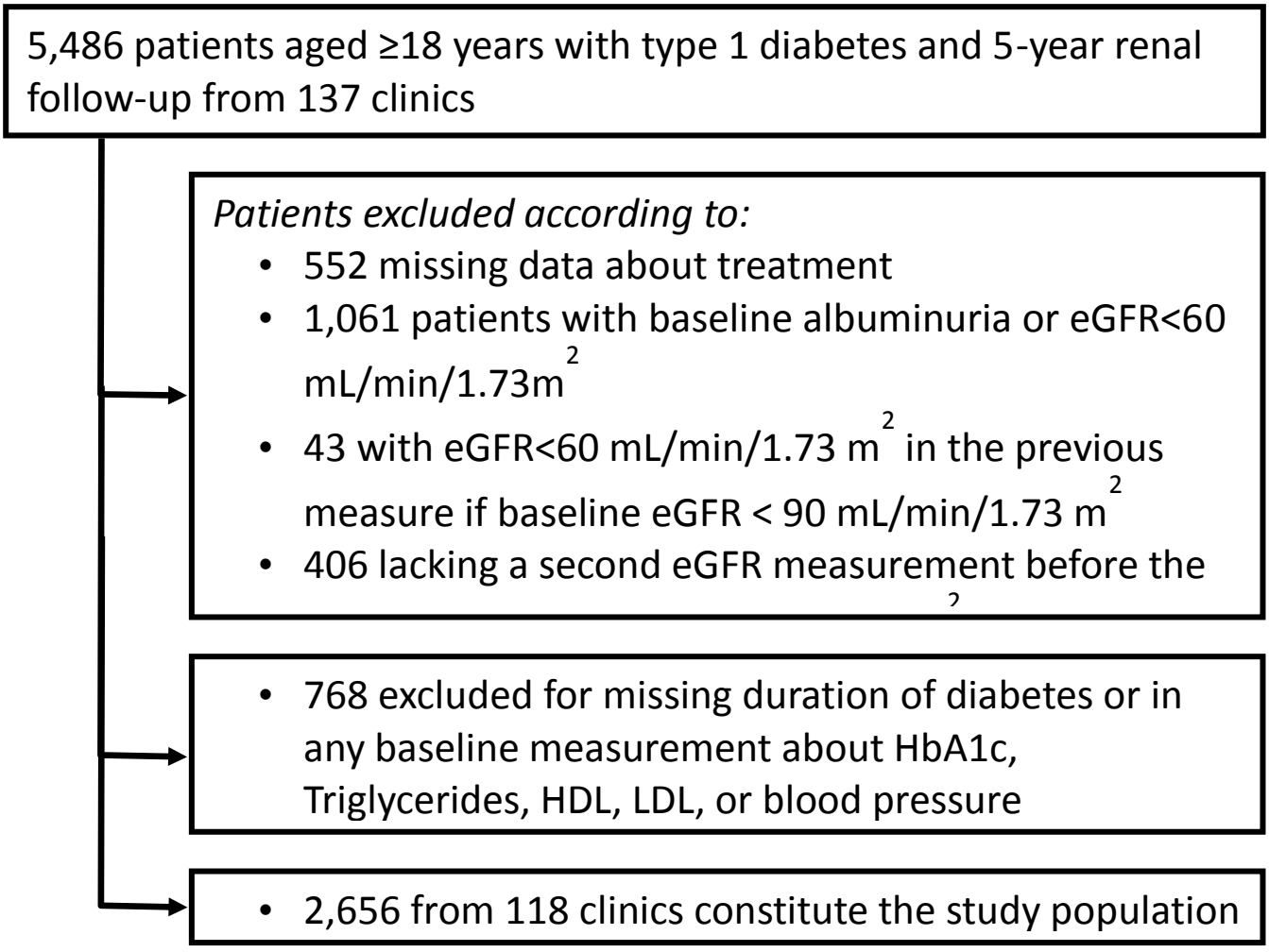
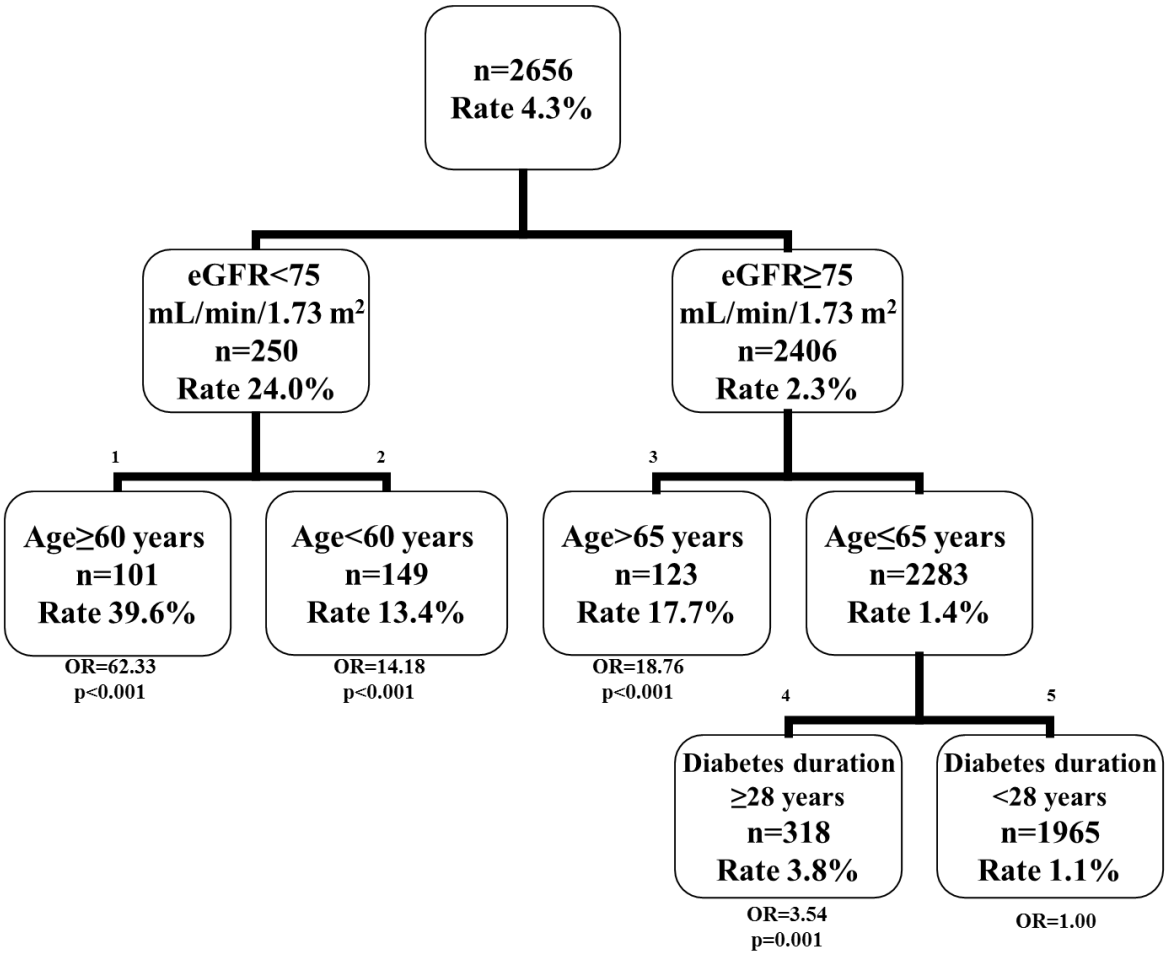
1. Fig. S1: Flow diagram for selection of study patients.

2. Fig. S2: Figure that illustrates the hierarchical tree of glomerular filtration rate (eGFR) <60 mL/min/1.73m2 risk during follow-up.

1-Supplemental Figure S1



2-Supplemental Figure S2



Supplementary Tables

Supplementary Table S1 Multivariate analysis for the occurrence of 5-year renal outcome.

	CKD		eGFR <60 mL/min/1.73m2		Albuminuria	
	Odds Ratio (95%CI)	**p**	**Odds Ratio (95%CI)**	**p**	**Odds Ratio (95%CI)**	**p**
Male sex	1.07 (0.86-1.32)	0.560	0.93 (0.59-1.46)	0.748	1.07 (0.85-1.34)	0.560
Age (by 10 years)	1.07 (0.97-1.18)	0.170	**2.00 (1.62-2.48)**	**<0.001**	0.93 (0.84-1.04)	0.214
Known duration of diabetes (by 10 years)	1.09 (0.98-1.20)	0.099	0.97 (0.81-1.16)	0.725	**1.14 (1.02-1.27)**	**0.018**
BMI (Kg/m^2)						
27-29.9	0.90 (0.66-1.22)	0.491	0.87 (0.45-1.67)	0.677	0.94 (0.68-1.31)	0.737
≥30	1.11 (0.72-1.72)	0.630	1.76 (0.82-3.78)	0.148	1.14 (0.72-1.79)	0.576
eGFR below 90 by 10 mL/min/1.73 m2	**1.48 (1.27-1.73)**	**<0.001**	**2.90 (2.26-3.71)**	**<0.001**	1.09 (0.91-1.29)	0.354
HbA1c≥7%	1.04 (0.82-1.31)	0.765	0.88 (0.52-1.50)	0.647	1.05 (0.82-1.35)	0.674
Triglycerides ≥150 mg/dl	1.44 (0.99-2.10)	0.056	0.95 (0.41-2.20)	0.909	**1.68 (1.15-2.47)**	**0.008**
HDL <40M <50F mg/dL	1.20 (0.85-1.68)	0.300	1.02 (0.48-2.15)	0.959	1.15 (0.80-1.63)	0.453
LDL ≥100 mg/dL	**0.75 (0.60-0.93)**	**0.008**	0.77 (0.49-1.22)	0.269	**0.77 (0.62-0.97)**	**0.026**
Blood Pressure ≥140/85 mmHg	1.22 (0.96-1.54)	0.101	1.24 (0.78-1.97)	0.368	1.21 (0.94-1.55)	0.133
Retinopathy						
Non-proliferative	1.18 (0.90-1.54)	0.228	1.01 (0.59-1.75)	0.962	1.16 (0.87-1.54)	0.316
Proliferative	**1.66 (1.09-2.52)**	**0.017**	1.34 (0.63-2.83)	0.445	**1.67 (1.08-2.59)**	**0.022**
Lipid-lowering treatment	1.10 (0.83-1.47)	0.503	0.82 (0.48-1.42)	0.484	1.24 (0.91-1.68)	0.172
Antihypertensive treatment	1.83 (0.95-3.52)	0.070	1.15 (0.35-3.78)	0.824	**2.20 (1.11-4.34)**	**0.024**
Treatment with ACE-Is/ARBs	0.97 (0.50-1.89)	0.929	1.33 (0.40-4.45)	0.641	0.81 (0.41-1.62)	0.555
Aspirin	0.84 (0.56-1.27)	0.409	0.74 (0.38-1.45)	0.378	0.93 (0.60-1.43)	0.728
Insulin pump	0.94 (0.60-1.48)	0.792	2.36 (0.96-5.81)	0.061	0.74 (0.45-1.23)	0.244
Complete case analysis						
SUA in the top gender-specific quintile	0.90 (0.62-1.30)	0.563	1.00 (0.49-2.04)	0.995	0.93 (0.63-1.38)	0.728
Smokers	**1.75 (1.25-2.44)**	**0.001**	0.87 (0.36-2.09)	0.757	**1.89 (1.34-2.68)**	**<0.001**

See Table 1 legend for abbreviations.

Supplementary Table S2. Baseline clinical characteristics and missing information of type 1 diabetes mellitus patients included or excluded from the study.

	Included	Excluded	Included	Excluded
	n=2656	**n=768**	***Missing, n (%)***	***Missing, n (%)***
Male sex	1487 (56.0%)	447 (58.2%)	-	-
Age (years)	44±14	42±13	-	-
Known duration of diabetes (years)	17±12	17±11	-	64 (8.3%)
BMI (Kg/m^2)	24.4±3.4	24.7±3.5	131 (4.9%)	398 (51.8%)
Serum creatinine (mg/dL)	0.84±0.16	0.85±0.16	-	-
eGFR (mL/min/1.73 m2)	99±16	100±16	-	-
Serum uric acid (mg/dL)	3.8±2.2	3.7±1.2	1192 (44.9%)	234 (30.5%)
Serum uric acid in the top gender-specific quintile	275 (18.8%)	99 (18.5%)	-	-
HbA1c (%) (mmol/mol)	7.7±1.3(60±9)	8.0±1.5(64±7)	-	26 (3.4%)
HbA1c≥7%	1843 (69.4%)	566 (76.3%)	-	-
Total cholesterol (mg/dL)	189±34	192±37	21 (0.8%)	114 (14.8%)
Triglycerides (mg/dL)	84±56	86±97	-	149 (19.4%)
Triglycerides ≥150 mg/dl	191 (7.2%)	39 (6.3%)	-	-
HDL (mg/dL)	62±19	61±16	-	143 (18.6%)
HDL <40M <50F mg/dL	294 (11.1%)	70 (11.2%)	-	-
LDL (mg/dL)	110±31	115±35	-	159 (20.7%)
LDL ≥100 mg/dL	1650 (62.1%)	425 (69.8%)	-	-
Systolic BP (mmHg)	125±17	126±17	-	595 (77.5%)
Diastolic BP (mmHg)	76±9	77±9	-	595 (77.5%)
Blood Pressure ≥140/85 mmHg	779 (29.3%)	52 (30.1%)	-	-
Retinopathy				
Non-proliferative	495 (18.6%)	171 (22.3%)	-	-
Proliferative	152 (5.7%)	29 (3.8%)	-	-
Smokers	357 (26.2%)	52 (25.7%)	1294 (48.7%)	566 (73.7%)
Lipid-lowering treatment	416 (15.7%)	78 (10.2%)	-	-
Treatment with statins	400 (15.1%)	72 (9.4%)	-	-
Treatment with fibrates	9 (0.3%)	4 (0.5%)	-	-
Antihypertensive treatment	534 (20.1%)	60 (7.8%)	-	-
Treatment with ACE-Is/ARBs	484 (18.2%)	54 (7.0%)	-	-
Aspirin	184 (6.9%)	25 (3.3%)	-	-
Insulin pump	162 (6.1%)	49 (6.4%)	-	-
5-year outcomes				
CKD	559 (21.0%)	120 (15.6%)	-	-
eGFR<60 mL/min/1.73 m2	115 (4.3%)	34 (4.4%)	-	-
Albuminuria	477 (18.0%)	93 (12.1%)	-	-

eGFR<60 and albuminuria	33 (1.2%)	7 (0.9%)	-	-

See Table 1 legend for abbreviations.

Supplementary Table S3. Baseline clinical characteristics of patients identified in nodes of hirarchical tree for glomerular filtration rate <60 mL/min/1.73 m^2 and for albuminuria.

	Nodes of hirarchical tree for glomerular filtration rate <60 mL/min/1.73 m^2					*Nodes of hierarchical tree for albuminuria*				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
	n=101	**n=149**	**n=123**	**n=318**	**n=1965**	**n=137**	**n=397**	**n=669**	**n=216**	**n=1237**
Male sex	46 (45.5%)	47 (31.5%)	68 (55.3%)	164 (51.6%)	1162 (59.1%)	65 (47.4%)	249 (62.7%)	439 (65.6%)	101 (46.8%)	633 (51.2%)
Known duration of diabetes (years)	26±15	20±12	26±14	35±6	12±8	27±14	21±12	15±10	15±10	15±11
BMI (Kg/m^2)	25.3±3.6	24.3±3.6	24.7±3.4	24.4±3.2	24.3±3.4	26.4±4.0	25.6±3.5	24.8±3.5	24.2±3.1	23.5±2.9
Serum creatinine (mg/dL)	0.99±0.13	1.05±0.12	0.76±0.13	0.81±0.15	0.83±0.16	0.99±0.14	0.80±0.15	0.86±0.16	0.81±0.17	0.83±0.16
eGFR (mL/min/1.73m2)	68±4	69±4	87±7	96±11	104±14	71±6	99±12	99±16	101±16	101±16
Serum uric acid (mg/dL)	4.3±1.5	3.9±1.2	3.6±1.0	4.0±3.3	3.8±2.1	4.4±1.3	4.1±2.7	4.0±2.7	3.4±0.9	3.7±1.8
SUA in the top gender-specific quintile	23 (42.6%)	32 (30.5%)	10 (14.7%)	32 (20.4%)	178 (16.5%)	42 (48.8%)	41 (19.7%)	81 (21.1%)	12 (9.8%)	99 (14.9%)
HbA1c (%)	8.1±1.1	7.7±1.2	7.9±1.1	7.7±1.3	7.6±1.4	8.1±1.2	7.7±1.2	7.8±1.4	9.7±1.0	7.1±0.9
HbA1c (mmol/mol)	(65±11)	(60±10)	(86±11)	(60±9)	(59±8)	(65±10)	(60±10)	(61±8)	(82±12)	(54±13)
HbA1c≥7%	87 (86.1%)	107 (71.8%)	101 (82.1%)	234 (73.6%)	1314 (66.9%)	116 (84.7%)	305 (76.8%)	497 (74.3%)	216 (100.0%)	709 (57.3%)
Total cholesterol (mg/dL)	194±37	196±35	192±31	195±30	187±35	192±34	191±34	200±38	187±31	183±31
Triglycerides (mg/dL)	96±42	86±46	79±29	78±37	85±61	92±42	91±68	133±73	61±13	59±14
Triglycerides ≥150 mg/dl	12 (11.9%)	11 (7.4%)	4 (3.3%)	14 (4.4%)	150 (7.6%)	12 (8.8%)	36 (9.1%)	143 (21.4%)	0 (0.0%)	0 (0.0%)
HDL (mg/dL)	65±21	64±17	67±21	66±19	61±18	63±19	60±20	57±19	67±18	65±18
HDL <40M <50F mg/dL	10 (9.9%)	17 (11.4%)	12 (9.8%)	24 (7.5%)	231 (11.8%)	13 (9.5%)	58 (14.6%)	115 (17.2%)	15 (6.9%)	93 (7.5%)
LDL (mg/dL)	111±36	114±31	108±28	114±28	109±31	111±30	113±31	117±34	108±29	106±28
LDL ≥100 mg/dL	58 (57.4%)	104 (69.8%)	75 (61.0%)	223 (70.1%)	1190 (60.6%)	89 (65.0%)	261 (65.7%)	473 (70.7%)	131 (60.6%)	696 (56.3%)
Systolic BP (mmHg)	141±17	128±16	140±17	130±18	123±16	138±16	134±17	125±16	124±16	122±16
Diastolic BP (mmHg)	77±9	76±9	77±10	75±9	76±9	77±9	79±10	76±9	76±9	74±8
Blood Pressure ≥140/85 mmHg	64 (63.4%)	52 (34.9%)	73 (59.3%)	120 (37.7%)	470 (23.9%)	80 (58.4%)	193 (48.6%)	189 (28.3%)	61 (28.2%)	256 (20.7%)
Non-proliferative retinopathy	22 (21.8%)	32 (21.5%)	36 (29.3%)	100 (31.4%)	305 (15.5%)	45 (32.8%)	101 (25.4%)	112 (16.7%)	44 (20.4%)	193 (15.6%)
Proliferative retinopathy	11 (10.9%)	12 (8.1%)	20 (16.3%)	47 (14.8%)	62 (3.2%)	14 (10.2%)	41 (10.3%)	39 (5.8%)	13 (6.0%)	45 (3.6%)
Smokers	5 (9.4%)	11 (15.5%)	10 (16.7%)	38 (25.9%)	293 (28.4%)	7 (10.1%)	52 (24.6%)	127 (37.1%)	23 (22.3%)	148 (23.2%)
Lipid-lowering treatment	31 (30.7%)	29 (19.5%)	46 (37.4%)	70 (22.0%)	240 (12.2%)	60 (43.8%)	147 (37.0%)	92 (13.8%)	14 (6.5%)	103 (8.3%)
Treatment with statins	29 (28.7%)	29 (19.5%)	45 (36.6%)	66 (20.8%)	231 (11.8%)	57 (41.6%)	142 (35.8%)	85 (12.7%)	14 (6.5%)	102 (8.2%)
Treatment with fibrates	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.6%)	7 (0.4%)	2 (1.5%)	0 (0.0%)	6 (0.9%)	0 (0.0%)	1 (0.1%)
Antihypertensive treatment	53 (52.5%)	39 (26.2%)	68 (55.3%)	104 (32.7%)	270 (13.7%)	137 (100.0%)	397 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Treatment with ACE-Is/ARBs	50 (49.5%)	35 (23.5%)	60 (48.8%)	94 (29.6%)	245 (12.5%)	124 (90.5%)	360 (90.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Aspirin	24 (23.8%)	12 (8.1%)	32 (26.0%)	43 (13.5%)	73 (3.7%)	44 (32.1%)	79 (19.9%)	21 (3.1%)	3 (1.4%)	37 (3.0%)
Insulin pump	2 (2.0%)	11 (7.4%)	0 (0.0%)	22 (6.9%)	127 (6.5%)	6 (4.4%)	26 (6.5%)	30 (4.5%)	14 (6.5%)	86 (7.0%)

5-year outcomes										
CKD	58 (57.4%)	45 (30.2%)	46 (37.4%)	76 (23.9%)	334 (17.0%)	70 (51.1%)	107 (27.0%)	155 (23.2%)	43 (19.9%)	184 (14.9%)
eGFR<60 mL/min/1.73 m2	40 (39.6%)	20 (13.4%)	21 (17.1%)	12 (3.8%)	22 (1.1%)	38 (27.7%)	16 (4.0%)	26 (3.9%)	4 (1.9%)	31 (2.5%)
Albuminuria	32 (31.7%)	31 (20.8%)	31 (25.2%)	67 (21.1%)	316 (16.1%)	48 (35.0%)	96 (24.2%)	137 (20.5%)	39 (18.1%)	157 (12.7%)
eGFR<60 and albuminuria	14 (13.9%)	6 (4.0%)	6 (4.9%)	3 (0.9%)	4 (0.2%)	16 (11.7%)	5 (1.3%)	8 (1.2%)	0 (0.0%)	4 (0.3%)

See Table 1 legend for abbreviations. Nodes are those identified in Supplemental Figure 2 and 3.