

Supplementary table 1. Characteristics of patients with TMA among the group with a triad of kidney impairment, severe retinopathy and concentric LVH.

	Kidney impairment $\cap$ Retinopathy $\cap$ c-LVH			p value
	Total, n=22	TMA (-), n=17	TMA (+), n=5	
Age (y/o)	46.5 [39.0-49.0]	47.0 [36.0-49.0]	46.0 [46.0-49.9]	0.556
Male/female	14/8	10/7	4/1	0.613
Body mass index (kg/m²)	25.8 [22.9-30.5]	28.3 [22.9-35.8]	24.6 [22.9-24.8]	0.256
Hypertension history (years)	1.5 [0.0-5.0]	2.0 [0.0-8.0]	1.0 [0.1-2.0]	0.763
Diabetes, n (%)	1 (4.5%)	1 (5.9%)	0 (0%)	1.0
Smoking, n (%)	14 (63.6%)	9 (52.9%)	5 (100.0%)	0.115
Smoking history (years)	12.0 [0.0-25.8]	5.0 [0.0-20.0]	26.0 [25.0-30.2]	0.013
Brinkman Index (n/day x years)	305 [0-460]	50 [0-400]	500 [480-520]	0.018
Systolic BP (mmHg)	226 [203-236]	228 [219-237]	211 [200-228]	0.610
Diastolic BP (mmHg)	147 [134-160]	151 [135-161]	143 [123-153]	0.610
eGFR (mL/min/1.73 m²)	12.5 [7.0-16.5]	12.0 [7.0-18.3]	13.0 [7.0-15.3]	0.813
Aldosterone (pg/mL)	321 [218-553]	321 [203-509]	321 [298-591]	0.611
Hemoglobin A1c (%)	5.1 [4.4-5.6]	5.1 [4.7-5.6]	4.2 [3.8-5.0]	0.223
LDL cholesterol (mg/dL)	119 [102-133]	113 [103-136]	124 [109-141]	0.505
HDL cholesterol (mg/dL)	46 [36-59]	47 [36-62]	43 [36-46]	0.480
Hematocrit (%)	31.6 [25.5-36.1]	33.2 [27.9-37.2]	25.5 [24.2-29.8]	0.160
Platelet count (x10⁴/mm³)	17.6 [11.9-22.4]	20.8 [15.9-23.0]	11.8 [8.3-12.1]	0.008
LDH (U/L)	529 [423-737]	456 [419-717]	722 [613-1135]	0.196

C-LVH; concentric left ventricular hypertrophy, TMA; thrombotic microangiopathy, BP; blood pressure, LDH; lactate dehydrogenase. Results are median [IQR].

Supplementary table 2. Roles of hemodynamic and metabolic factors in the development of organ damage in patients with one or two complications.

						p value
Hypertension treatment, n (total)						
Severe renal impairment	3 (7)	vs	c-LVH (+)	4 (16)		0.626
			Retinopathy (+)	2 (12)		0.305
Hypertension history, years [IQR]						
Severe renal impairment	2.0 [1.0-11.5]	vs	c-LVH (+)	5.0 [1.0-16.0]		0.749
			Retinopathy (+)	2.0 [1.3-9.2]		0.806
Tobacco, Brinkman index* [IQR]						
Severe renal impairment	0 [0-128]	vs	c-LVH (+)	430 [105-700]		0.039
			Retinopathy (+)	0 [0-278]		0.705
LDL-cholesterol, mg/dL [IQR]						
Severe renal impairment	149 [104-162]	vs	c-LVH (+)	120 [105-135]		0.525
			Retinopathy (+)	103 [95-138]		0.330
Hemoglobin A1c, % [IQR]						
Severe renal impairment	5.5 [5.2-5.9]	vs	c-LVH (+)	5.5 [4.8-6.0]		0.763
			Retinopathy (+)	5.6 [4.8-6.5]		0.832
Body mass index, kg/m² [IQR]						
Severe renal impairment	28.3 [24.7-31.0]	vs	c-LVH (+)	28.8 [24.8-30.8]		0.947
			Retinopathy (+)	31.8 [29.0-36.8]		0.163
Systolic BP, mmHg [IQR]						
Severe renal impairment	204 [199-251]	vs	c-LVH (+)	222 [197-235]		0.947
			Retinopathy (+)	221 [199-244]		0.966
Diastolic BP, mmHg [IQR]						
Severe renal impairment	120 [113-130]	vs	c-LVH (+)	138 [127-145]		0.094
			Retinopathy (+)	136 [119-146]		0.176

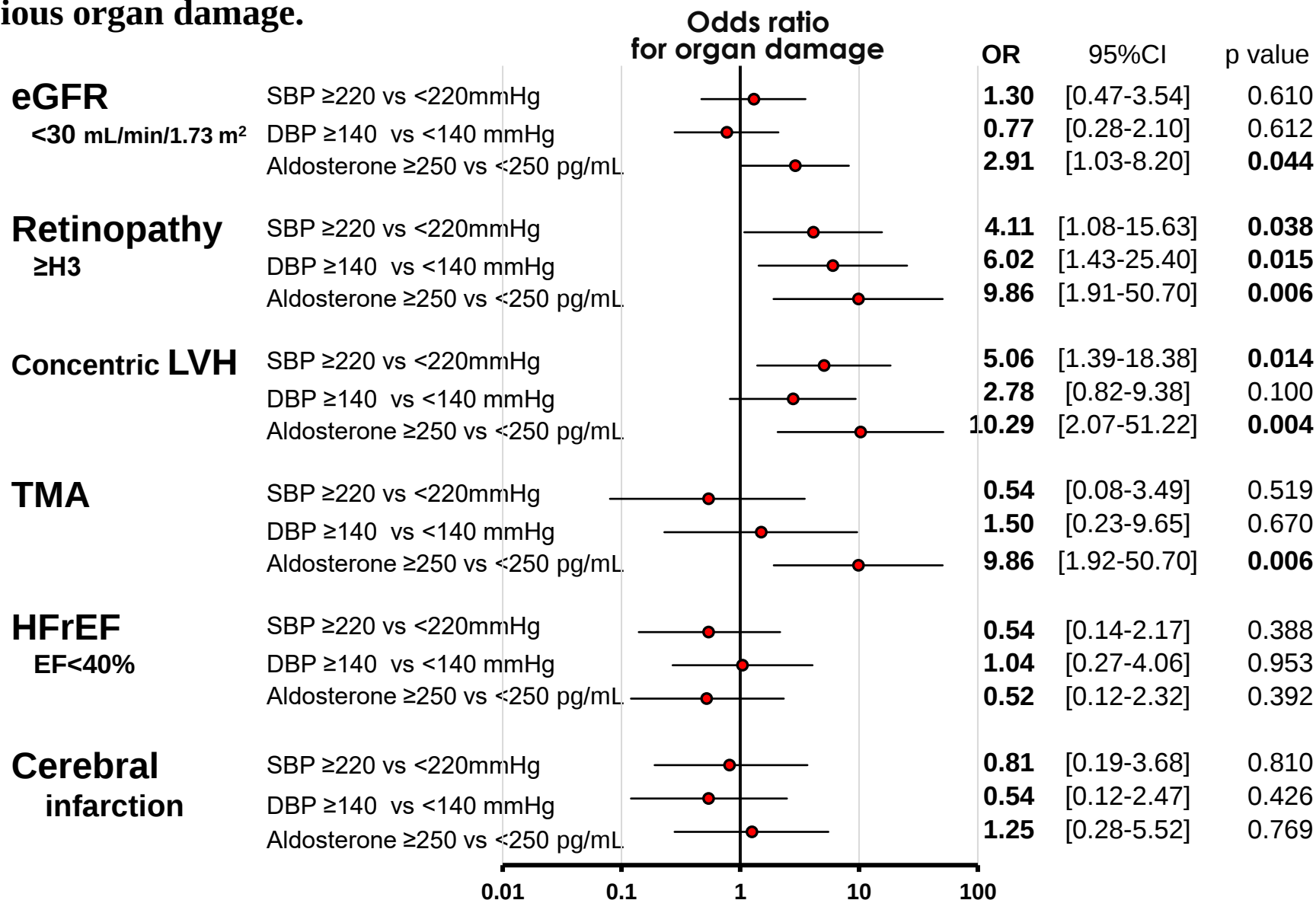
c-LVH; concentric left ventricular hypertrophy. *; number of cigarettes smoked per day x number of years of smoking.

Supplementary table 3. Plasma renin activity in various organ complications.

Complication	PRA (ng/min/h) [IQR]		p value
	(+)	(-)	
Kidney impairment	16.9 [5.4-41.0]	7.6 [4.2-16.2]	0.041
Retinopathy	16.6 [5.4-43.3]	6.8 [1.9-13.0]	0.006
C-LVH	14.0 [5.3-34.7]	10.7 [1.5-16.6]	0.192
TMA	56.9 [22.5-61.1]	11.2 [3.9-25.4]	0.009
HFrEF	15.8 [8.1-24.3]	12.1 [3.8-28.7]	0.772
Cerebral infarction	11.3 [4.2-23.4]	13.9 [4.5-27.0]	0.614

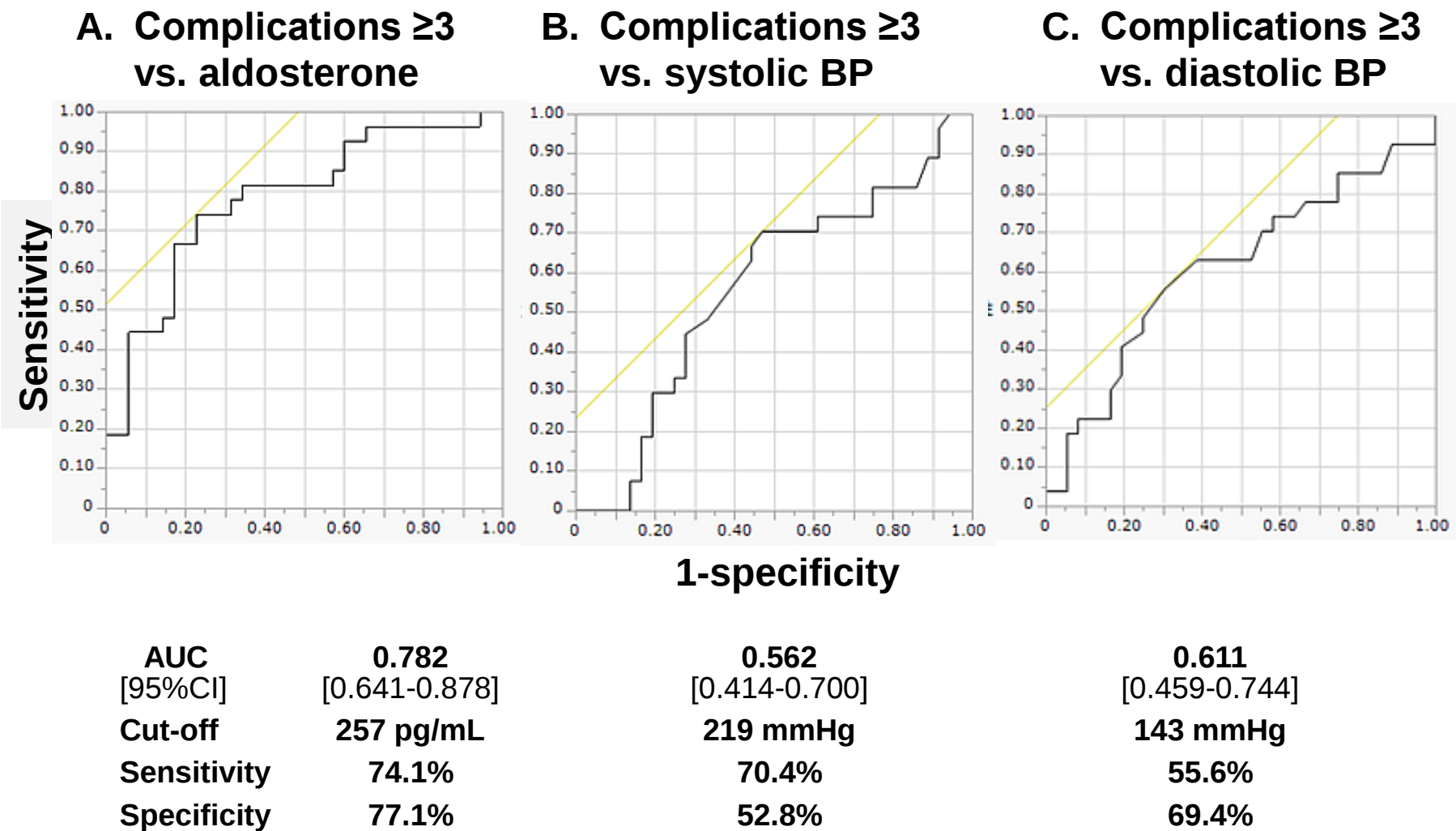
PRA; plasma renin activity, LVH; left ventricular hypertrophy, TMA; thrombotic microangiopathy, HFrEF; heart failure with reduced ejection fraction.

Supplementary fig. 1. Impact of blood pressure and aldosterone on the development of various organ damage.



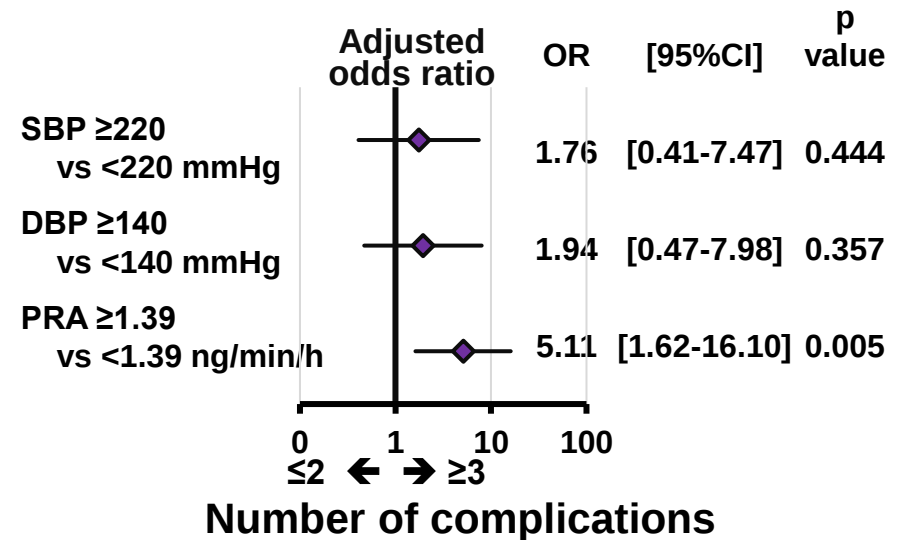
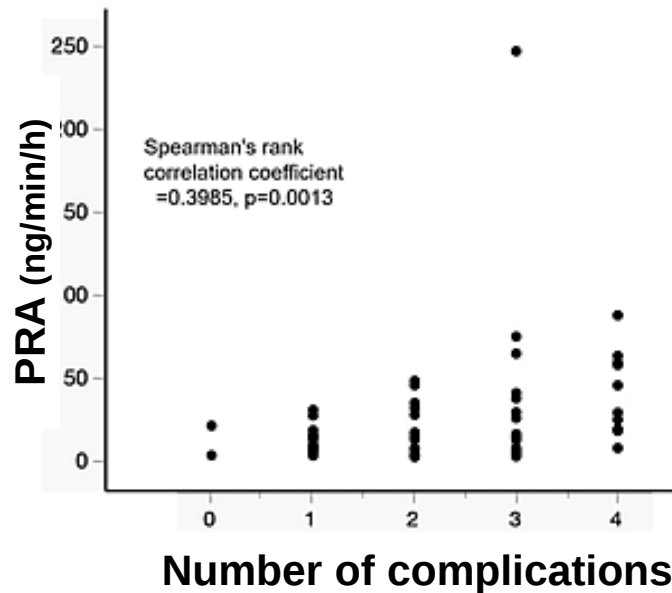
LVH; left ventricular hypertrophy, TMA; thrombotic microangiopathy, HF rEF; heart failure with reduced ejection fraction.

Supplementary fig. 2. ROC curves determining the cut-off values for complications $\geq$ 3 vs aldosterone, systolic BP and diastolic BP.



Supplementary fig. 3. Association between the number of complications and plasma renin activity in patients with hypertensive emergencies.

A. PRA vs. number of complications B. Adjusted odds ratio for complications



PRA; plasma renin activity, SBP; systolic blood pressure, DBP; diastolic blood pressure.
OR; odds ratio.