

# Supplementary material for the paper:

## High Mortality and Morbidity associated with Covid-19 infection and presentation with Diabetic Ketoacidosis in a large New York City public health system

Contains:

### Graphs concerning the quality of the matching technique used:

- Figure S1. Extent of covariate imbalance in terms of standardized percentage differences before and after matching
- Figure S2. Propensity scores, subject-specific probability of mortality (A) before matching and (B) after matching.

### Statistics:

- Table S1. Correlation matrix of disorders (N=22,694)
- Table S2. Correlation matrix of disorders in DKA Cohort (N=422)

### Regression analysis for the outcome of intubation:

- Table S3. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of intubation
- Table S4. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of intubation
- Table S5. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of intubation

### Regression analysis for the outcome of ICU admission:

- Table S6. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of ICU admission
- Table S7. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of ICU admission
- Table S8. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of ICU admission

### Regression analysis for the outcome of Renal Replacement Therapy:

- Table S9. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy

- **Table S10. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy**
- **Table S11. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy**

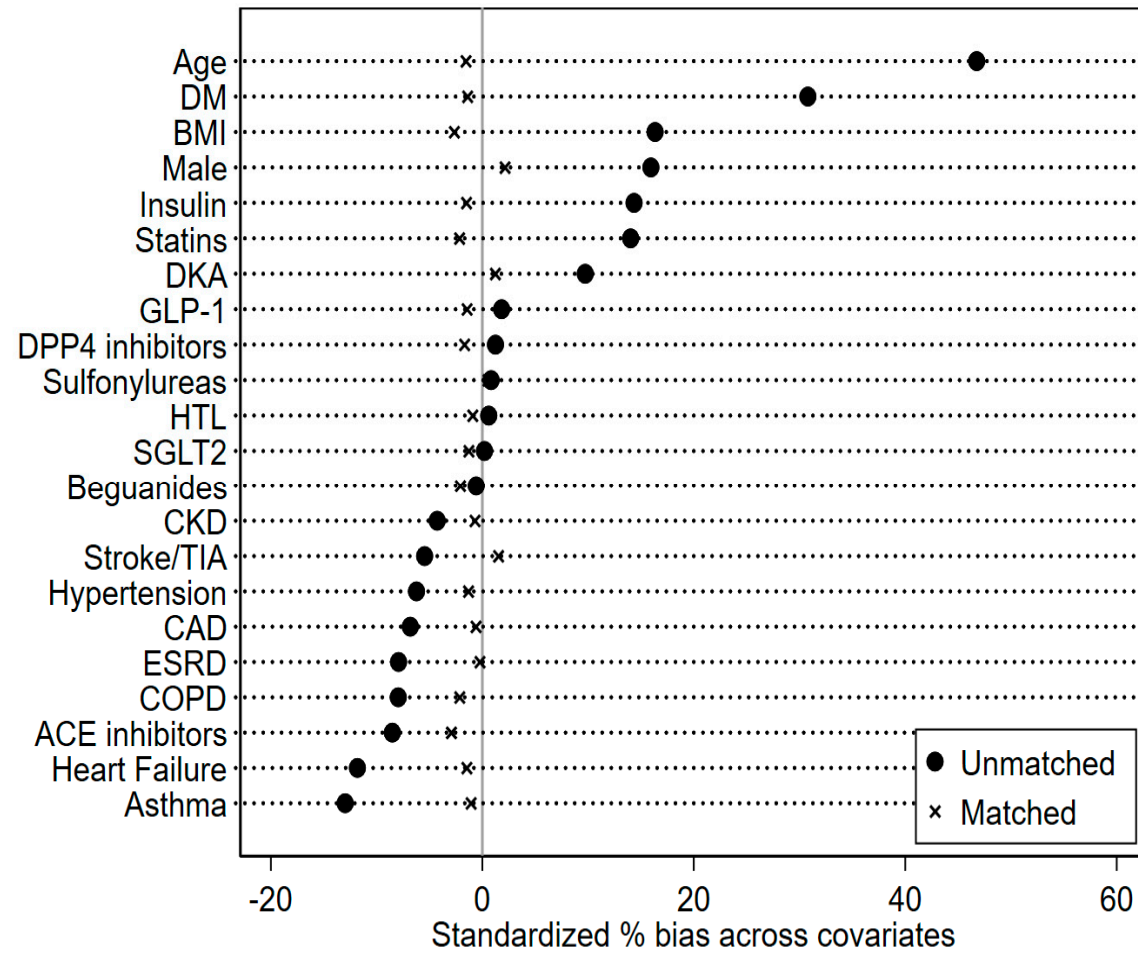


Figure S1. Extent of covariate imbalance in terms of standardized percentage differences before and after matching

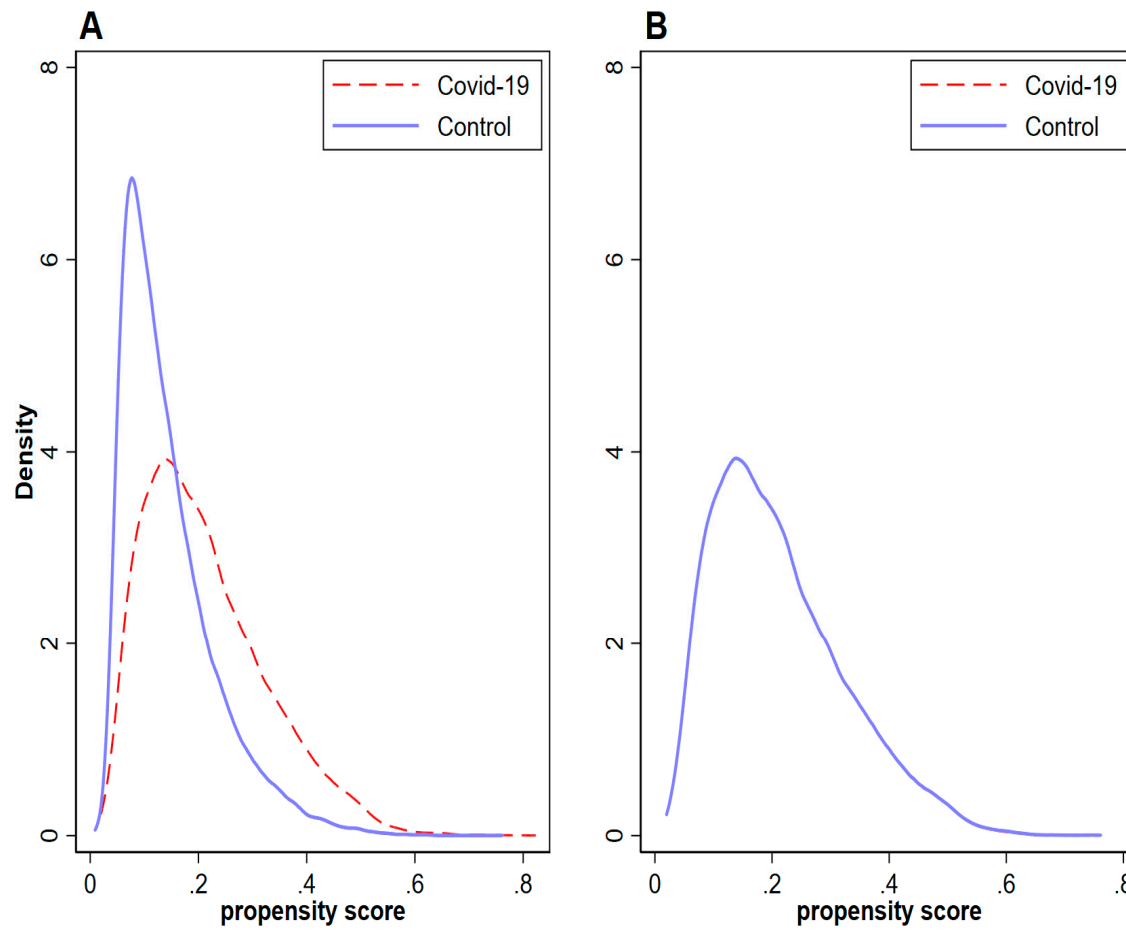


Figure S2. Propensity scores, subject-specific probability of mortality (A) before matching and (B) after matching.

**Table S1. Correlation matrix of disorders (N=22,694)**

	Diabetic Ketoacidosis	History of DM	Type 1 Diabetes	HTN	HLD	Pulmonary HTN	COPD	Asthma	CAD	Heart Failure	Stroke/TIA	ESRD	Chronic Kidney Disease
Diabetic Ketoacidosis	1												
History of DM	0.1558	1											
Type 1 Diabetes	0.378	0.0888	1										
HTN	0.0029	0.2452	0.0022	1									
HLD	0.0064	0.1953	0.0001	0.4047	1								
Pulmonary HTN	-0.0048	0.0163	-0.0054	0.0652	0.0571	1							
COPD	-0.0178	0.0367	-0.0115	0.1318	0.0857	0.0347	1						
Asthma	-0.0083	0.0425	0.0001	0.1514	0.1211	0.0169	0.1316	1					
CAD	-0.0153	0.0981	-0.0076	0.1924	0.1633	0.0318	0.0696	0.0533	1				
Heart Failure	-0.0098	0.0986	-0.0038	0.2095	0.1462	0.1195	0.1546	0.0878	0.1895	1			
Stroke/TIA	-0.0075	0.0546	0.0105	0.0901	0.0866	0.0309	0.0259	0.0188	0.0387	0.0332	1		
ESRD	-0.0019	0.0961	0.0073	0.1926	0.0727	0.0494	0.0435	0.0142	0.0838	0.1547	0.0261	1	
Chronic Kidney Disease	0.0057	0.1398	0.0067	0.2784	0.17	0.0561	0.0628	0.0299	0.1402	0.2224	0.0587	0.2541	1

**Table S2. Correlation matrix of disorders in DKA Cohort (N=422)**

	Type 1 Diabetes	HTN	HLD	Pulmonary HTN	COPD	Asthma	CAD	Heart Failure	Stroke/TIA	ESRD	Chronic Kidney Disease
Type 1 Diabetes	1										
HTN	0.0025	1									
HLD	-0.054	0.3704	1								
Pulmonary HTN	-0.0259	0.088	-0.0168	1							
COPD	-0.0259	0.088	-0.0168	-0.002	1						
Asthma	0.0376	0.1278	0.0273	-0.009	0.2734	1					
CAD	-0.0054	0.1461	0.1041	-0.005	-0.005	-0.0195	1				
Heart Failure	-0.0457	0.2122	0.1726	-0.01	-0.01	0.0364	0.0929	1			
Stroke/TIA	0.0911	-0.0468	-0.0292	-0.004	-0.004	-0.0151	-0.009	-0.0168	1		
ESRD	0.0009	0.2706	0.079	0.2309	-0.01	-0.0376	0.0853	0.2037	-0.018	1	
Chronic Kidney Disease	0.0364	0.2254	0.1186	0.1794	-0.013	0.1684	-0.03	0.2403	0.0885	0.1281	1

**Table S3. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of intubation**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=22,694	n=22,694	n=22,694	n=22,694
	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value
Age per 10	1.12** (1.09 - 1.15) p<0.001	1.17** (1.14 - 1.21) p<0.001	1.15** (1.11 - 1.19) p<0.001	1.18** (1.14 - 1.22) p<0.001	1.11** (1.07 - 1.16) p<0.001
Male	1.52** (1.35 - 1.70) p<0.001	1.65** (1.47 - 1.85) p<0.001	1.63** (1.45 - 1.83) p<0.001	1.65** (1.46 - 1.85) p<0.001	1.49** (1.31 - 1.69) p<0.001
BMI	1.01** (1.01 - 1.02) p<0.001	1.03** (1.02 - 1.03) p<0.001	1.02** (1.02 - 1.03) p<0.001	1.03** (1.02 - 1.03) p<0.001	1.02** (1.01 - 1.03) p<0.001
Covid-19	2.90** (2.57 - 3.27) p<0.001	2.95** (2.61 - 3.33) p<0.001	2.98** (2.64 - 3.37) p<0.001	2.93** (2.60 - 3.32) p<0.001	2.04** (1.78 - 2.35) p<0.001
Diabetic Ketoacidosis	1.78** (1.29 - 2.44) p<0.001	2.00** (1.45 - 2.78) p<0.001	1.37 (0.98 - 1.91) p=0.067	1.36 (0.97 - 1.91) p=0.074	1.35 (0.95 - 1.92) p=0.097
History of DM	2.17** (1.95 - 2.43) p<0.001		2.16** (1.92 - 2.43) p<0.001	2.44** (2.12 - 2.82) p<0.001	1.64** (1.41 - 1.91) p<0.001
Type 1 Diabetes	1.17 (0.61 - 2.23) p=0.636		0.91 (0.47 - 1.79) p=0.795	0.86 (0.44 - 1.69) p=0.662	1.02 (0.50 - 2.04) p=0.966
Hypertension	0.84* (0.74 - 0.96) p=0.012		0.69** (0.59 - 0.81) p<0.001	0.74** (0.63 - 0.87) p<0.001	0.76** (0.65 - 0.90) p=0.001
Hyperlipidemia	0.85 (0.69 - 1.03) p=0.096		0.83 (0.67 - 1.03) p=0.094	0.99 (0.79 - 1.23) p=0.900	1.12 (0.89 - 1.41) p=0.350
Pulmonary Hypertension	0.43 (0.14 - 1.35) p=0.149		0.51 (0.17 - 1.53) p=0.228	0.48 (0.16 - 1.45) p=0.193	0.43 (0.14 - 1.33) p=0.142
COPD	0.80 (0.53 - 1.21) p=0.291		0.91 (0.59 - 1.41) p=0.678	0.94 (0.61 - 1.46) p=0.792	0.66 (0.42 - 1.03) p=0.069
Asthma	0.68* (0.50 - 0.93) p=0.017		0.82 (0.59 - 1.13) p=0.223	0.81 (0.59 - 1.13) p=0.216	0.63** (0.45 - 0.87) p=0.006
CAD	0.78 (0.55 - 1.10) p=0.155		0.72 (0.50 - 1.04) p=0.078	0.79 (0.55 - 1.14) p=0.201	0.87 (0.60 - 1.27) p=0.473
Heart Failure	0.89 (0.70 - 1.15) p=0.377		0.84 (0.64 - 1.11) p=0.222	0.91 (0.69 - 1.20) p=0.509	1.04 (0.78 - 1.38) p=0.779
Stroke/TIA	0.89 (0.54 - 1.46) p=0.645		0.81 (0.49 - 1.34) p=0.409	0.90 (0.54 - 1.50) p=0.686	1.13 (0.67 - 1.88) p=0.650
ESRD	1.47** (1.17 - 1.84) p=0.001		1.61** (1.26 - 2.05) p<0.001	1.55** (1.21 - 2.00) p=0.001	1.27 (0.98 - 1.65) p=0.076
Chronic Kidney Disease	1.08 (0.86 - 1.35) p=0.512		0.94 (0.73 - 1.20) p=0.609	0.95 (0.74 - 1.23) p=0.712	1.03 (0.79 - 1.33) p=0.849
Biguanides	0.71** (0.57 - 0.87) p=0.001			0.64** (0.51 - 0.80) p<0.001	0.79 (0.62 - 1.01) p=0.058
DPP4-inhibitors	0.81 (0.65 - 1.01) p=0.060			0.74* (0.59 - 0.93) p=0.011	0.81 (0.63 - 1.04) p=0.092
SGLT-2 inhibitors	1.51 (0.54 - 4.22) p=0.434			2.56 (0.83 - 7.90) p=0.103	2.90 (0.88 - 9.53) p=0.080
GLP-1 agonists	0.64 (0.30 - 1.37) p=0.251			0.65 (0.30 - 1.38) p=0.261	0.69 (0.33 - 1.44) p=0.321
Insulin	1.45** (1.30 - 1.61) p<0.001			1.16* (1.00 - 1.33) p=0.050	1.17* (1.01 - 1.35) p=0.040
ACE inhibitors	0.88 (0.77 - 1.01) p=0.072			0.87 (0.75 - 1.00) p=0.053	0.97 (0.83 - 1.13) p=0.689
Sulfonylureas	0.64 (0.39 - 1.04) p=0.071			0.64 (0.39 - 1.06) p=0.081	0.69 (0.41 - 1.14) p=0.150
Statins	0.89* (0.80 - 0.99) p=0.036			0.67** (0.59 - 0.76) p<0.001	0.62** (0.54 - 0.70) p<0.001
Heparin	2.27** (2.03 - 2.54) p<0.001				1.74** (1.52 - 2.00) p<0.001
Enoxaparin	1.73** (1.54 - 1.93) p<0.001				1.12 (0.97 - 1.29) p=0.116
Apixaban	1.22* (1.04 - 1.44) p=0.017				0.77** (0.64 - 0.92) p=0.005
Steroids	6.72** (6.00 - 7.52) p<0.001				4.49** (3.93 - 5.12) p<0.001
Tocilizumab	2.77** (2.20 - 3.49) p<0.001				0.86 (0.65 - 1.13) p=0.276
Remdesivir	2.75** (2.09 - 3.64) p<0.001				0.93 (0.68 - 1.27) p=0.640
Convalescent Plasma	4.12** (3.32 - 5.12) p<0.001				0.85 (0.64 - 1.11) p=0.230
Cafepime	5.82** (5.17 - 6.56) p<0.001				2.82** (2.44 - 3.25) p<0.001

**Table S4. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of intubation**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=11,371	n=11,371	n=11,371	n=11,371
	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value
Age per 10	1.10** (1.06 - 1.13) p<0.001	1.13** (1.09 - 1.17) p<0.001	1.11** (1.06 - 1.15) p<0.001	1.13** (1.08 - 1.17) p<0.001	1.08** (1.03 - 1.13) p=0.002
Male	1.53** (1.35 - 1.74) p<0.001	1.72** (1.49 - 1.97) p<0.001	1.71** (1.48 - 1.96) p<0.001	1.72** (1.49 - 1.98) p<0.001	1.49** (1.28 - 1.73) p<0.001
BMI	1.02** (1.01 - 1.03) p<0.001	1.03** (1.02 - 1.04) p<0.001	1.03** (1.02 - 1.04) p<0.001	1.03** (1.02 - 1.04) p<0.001	1.02** (1.01 - 1.03) p<0.001
Diabetic Ketoacidosis	1.86** (1.32 - 2.63) p<0.001	1.84** (1.26 - 2.69) p=0.002	1.33 (0.90 - 1.97) p=0.155	1.33 (0.89 - 1.99) p=0.164	1.27 (0.84 - 1.92) p=0.260
History of DM	2.23** (1.98 - 2.52) p<0.001		2.11** (1.84 - 2.43) p<0.001	2.37** (2.01 - 2.79) p<0.001	1.51** (1.27 - 1.80) p<0.001
Type 1 Diabetes	1.37 (0.65 - 2.87) p=0.407		0.62 (0.24 - 1.56) p=0.307	0.61 (0.24 - 1.54) p=0.294	0.71 (0.29 - 1.76) p=0.464
Hypertension	0.85* (0.73 - 0.99) p=0.040		0.74** (0.62 - 0.89) p=0.002	0.80* (0.66 - 0.97) p=0.022	0.78* (0.64 - 0.95) p=0.013
Hyperlipidemia	0.84 (0.67 - 1.04) p=0.111		0.87 (0.67 - 1.12) p=0.273	1.00 (0.77 - 1.31) p=0.985	1.16 (0.87 - 1.53) p=0.312
Pulmonary Hypertension	0.45 (0.11 - 1.88) p=0.275		0.51 (0.14 - 1.85) p=0.302	0.47 (0.13 - 1.74) p=0.260	0.44 (0.11 - 1.67) p=0.226
COPD	0.65 (0.39 - 1.10) p=0.111		0.89 (0.51 - 1.54) p=0.671	0.91 (0.53 - 1.59) p=0.745	0.69 (0.39 - 1.23) p=0.207
Asthma	0.63* (0.44 - 0.91) p=0.013		0.82 (0.56 - 1.20) p=0.297	0.82 (0.56 - 1.20) p=0.305	0.69 (0.46 - 1.02) p=0.065
CAD	0.74 (0.50 - 1.10) p=0.138		0.75 (0.49 - 1.16) p=0.198	0.81 (0.53 - 1.25) p=0.350	0.92 (0.59 - 1.42) p=0.702
Heart Failure	0.72* (0.53 - 0.99) p=0.043		0.68* (0.48 - 0.96) p=0.029	0.73 (0.51 - 1.04) p=0.080	0.90 (0.63 - 1.29) p=0.556
Stroke/TIA	0.75 (0.42 - 1.35) p=0.342		0.77 (0.42 - 1.41) p=0.400	0.86 (0.47 - 1.57) p=0.622	1.06 (0.58 - 1.94) p=0.844
ESRD	1.53** (1.18 - 1.97) p=0.001		1.84** (1.38 - 2.45) p<0.001	1.80** (1.34 - 2.42) p<0.001	1.32 (0.98 - 1.79) p=0.070
Chronic Kidney Disease	1.07 (0.83 - 1.39) p=0.595		0.89 (0.66 - 1.20) p=0.446	0.91 (0.67 - 1.23) p=0.543	0.99 (0.72 - 1.35) p=0.931
Biguanides	0.76* (0.60 - 0.95) p=0.018			0.71* (0.54 - 0.93) p=0.013	0.93 (0.70 - 1.24) p=0.639
DPP4-inhibitors	0.79 (0.61 - 1.01) p=0.058			0.72* (0.55 - 0.95) p=0.022	0.81 (0.60 - 1.10) p=0.172
SGLT-2 inhibitors	2.85* (1.06 - 7.70) p=0.038			4.30* (1.14 - 16.19) p=0.031	4.55* (1.06 - 19.55) p=0.042
GLP-1 agonists	0.71 (0.31 - 1.64) p=0.425			0.65 (0.27 - 1.61) p=0.355	0.70 (0.28 - 1.75) p=0.442
Insulin	1.39** (1.23 - 1.56) p<0.001			1.07 (0.91 - 1.27) p=0.418	1.11 (0.94 - 1.32) p=0.230
ACE inhibitors	0.86 (0.74 - 1.00) p=0.056			0.85 (0.71 - 1.01) p=0.064	0.97 (0.81 - 1.17) p=0.752
Sulfonylureas	0.93 (0.60 - 1.44) p=0.746			0.85 (0.50 - 1.44) p=0.550	0.86 (0.49 - 1.51) p=0.605
Statins	0.89 (0.79 - 1.00) p=0.053			0.74** (0.64 - 0.86) p<0.001	0.65** (0.56 - 0.77) p<0.001
Heparin	2.53** (2.23 - 2.86) p<0.001				1.79** (1.53 - 2.09) p<0.001
Enoxaparin	1.28** (1.13 - 1.46) p<0.001				1.09 (0.92 - 1.29) p=0.307
Apixaban	1.12 (0.94 - 1.34) p=0.187				0.76** (0.62 - 0.94) p=0.010
Steroids	6.02** (5.31 - 6.82) p<0.001				4.16** (3.55 - 4.88) p<0.001
Tocilizumab	1.85** (1.48 - 2.31) p<0.001				0.86 (0.65 - 1.14) p=0.293
Remdesivir	1.85** (1.40 - 2.44) p<0.001				0.93 (0.68 - 1.28) p=0.663
Convalescent Plasma	2.81** (2.27 - 3.50) p<0.001				0.89 (0.68 - 1.17) p=0.399
Cafepime	4.43** (3.89 - 5.06) p<0.001				2.65** (2.24 - 3.12) p<0.001



**Table S5. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of intubation**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=422	n=422	n=422	n=422
	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value
Age per 10	1.15 (0.97 - 1.38) p=0.112	1.14 (0.94 - 1.38) p=0.190	1.18 (0.96 - 1.45) p=0.107	1.23* (1.01 - 1.50) p=0.042	1.14 (0.88 - 1.47) p=0.331
Male	0.93 (0.48 - 1.78) p=0.822	1.18 (0.60 - 2.29) p=0.634	1.09 (0.55 - 2.15) p=0.813	1.24 (0.58 - 2.64) p=0.583	0.97 (0.39 - 2.42) p=0.940
BMI	1.03 (1.00 - 1.06) p=0.070	1.04* (1.01 - 1.07) p=0.021	1.04** (1.01 - 1.08) p=0.009	1.04* (1.01 - 1.08) p=0.020	1.04 (0.99 - 1.08) p=0.086
Covid-19	2.72** (1.36 - 5.45) p=0.005	2.66** (1.27 - 5.57) p=0.009	2.76** (1.33 - 5.72) p=0.006	2.42* (1.14 - 5.14) p=0.021	1.69 (0.66 - 4.29) p=0.272
Type 1 Diabetes	1.05 (0.50 - 2.21) p=0.907		1.58 (0.67 - 3.70) p=0.296	1.73 (0.70 - 4.26) p=0.233	2.96 (0.98 - 8.97) p=0.055
Hypertension	0.82 (0.38 - 1.78) p=0.620		0.71 (0.33 - 1.54) p=0.385	0.92 (0.38 - 2.19) p=0.844	1.01 (0.40 - 2.53) p=0.983
Hyperlipidemia	0.82 (0.28 - 2.42) p=0.722		0.67 (0.19 - 2.40) p=0.539	0.87 (0.22 - 3.46) p=0.839	1.35 (0.24 - 7.50) p=0.729
Asthma	0.71 (0.09 - 5.60) p=0.745		0.73 (0.10 - 5.56) p=0.759	0.48 (0.12 - 1.90) p=0.297	0.16 (0.02 - 1.00) p=0.050
Heart Failure	0.56 (0.07 - 4.38) p=0.583		0.38 (0.04 - 3.84) p=0.409	0.38 (0.03 - 4.49) p=0.445	0.78 (0.08 - 7.35) p=0.830
ESRD	1.08 (0.24 - 4.86) p=0.923		1.30 (0.21 - 8.17) p=0.782	1.87 (0.23 - 15.54) p=0.561	2.73 (0.25 - 29.62) p=0.410
CKD	1.89 (0.68 - 5.24) p=0.221		2.53 (0.76 - 8.38) p=0.129	3.38 (0.92 - 12.38) p=0.066	3.69 (0.92 - 14.87) p=0.066
Biguanides	0.93 (0.35 - 2.47) p=0.877			2.03 (0.61 - 6.79) p=0.251	3.70 (0.93 - 14.79) p=0.064
DPP4-inhibitors	0.26* (0.08 - 0.85) p=0.026			0.17** (0.05 - 0.60) p=0.006	0.18* (0.04 - 0.74) p=0.017
GLP-1 agonists	4.37 (0.39 - 49.36) p=0.233			6.40 (0.92 - 44.62) p=0.061	2.51 (0.23 - 27.91) p=0.455
Insulin	0.57 (0.30 - 1.07) p=0.082			0.58 (0.28 - 1.22) p=0.151	0.58 (0.23 - 1.43) p=0.236
ACE inhibitors	0.34* (0.14 - 0.84) p=0.019			0.29* (0.11 - 0.78) p=0.014	0.26* (0.08 - 0.81) p=0.020
Sulfonylureas	3.55 (0.67 - 18.92) p=0.137			6.77 (0.56 - 81.25) p=0.131	14.91 (0.79 - 282.36) p=0.072
Statins	0.78 (0.42 - 1.46) p=0.443			0.99 (0.48 - 2.07) p=0.983	1.01 (0.43 - 2.39) p=0.983
Heparin	1.89 (0.95 - 3.80) p=0.072				1.34 (0.48 - 3.76) p=0.575
E0xaparin	0.89 (0.48 - 1.67) p=0.717				0.43 (0.16 - 1.13) p=0.085
Apixaban	1.16 (0.39 - 3.47) p=0.790				0.27 (0.06 - 1.30) p=0.102
Steroids	9.67** (4.90 - 19.09) p<0.001				9.55** (3.84 - 23.76) p<0.001
Tocilizumab	1.45 (0.31 - 6.72) p=0.633				0.21 (0.02 - 2.11) p=0.184
Remdesivir	2.91 (0.30 - 28.64) p=0.361				4.11 (0.18 - 92.78) p=0.374
Convalescent Plasma	2.69 (0.71 - 10.20) p=0.145				0.72 (0.12 - 4.18) p=0.712
Cefepime	6.25** (3.17 - 12.33) p<0.001				4.26** (1.64 - 11.02) p=0.003

**Table S6. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of ICU admission**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=22,694	n=22,694	n=22,694	n=22,694
	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value
Age per 10	1.08** (1.06 - 1.10) <i>p</i> <0.001	1.12** (1.10 - 1.14) <i>p</i> <0.001	1.09** (1.07 - 1.12) <i>p</i> <0.001	1.11** (1.08 - 1.13) <i>p</i> <0.001	1.04** (1.01 - 1.06) <i>p</i> =0.003
Male	1.36** (1.27 - 1.45) <i>p</i> <0.001	1.43** (1.33 - 1.53) <i>p</i> <0.001	1.42** (1.32 - 1.52) <i>p</i> <0.001	1.43** (1.33 - 1.53) <i>p</i> <0.001	1.32** (1.22 - 1.42) <i>p</i> <0.001
BMI	1.01** (1.00 - 1.01) <i>p</i> <0.001	1.02** (1.01 - 1.02) <i>p</i> <0.001	1.02** (1.01 - 1.02) <i>p</i> <0.001	1.02** (1.01 - 1.02) <i>p</i> <0.001	1.01** (1.01 - 1.01) <i>p</i> <0.001
Covid-19	1.78** (1.66 - 1.90) <i>p</i> <0.001	1.81** (1.69 - 1.94) <i>p</i> <0.001	1.84** (1.71 - 1.97) <i>p</i> <0.001	1.83** (1.71 - 1.96) <i>p</i> <0.001	1.06 (0.97 - 1.15) <i>p</i> =0.185
Diabetic Ketoacidosis	5.99** (4.93 - 7.29) <i>p</i> <0.001	6.94** (5.64 - 8.53) <i>p</i> <0.001	4.28** (3.42 - 5.35) <i>p</i> <0.001	4.24** (3.38 - 5.33) <i>p</i> <0.001	5.09** (3.96 - 6.53) <i>p</i> <0.001
History of DM	2.18** (2.04 - 2.34) <i>p</i> <0.001		2.01** (1.87 - 2.17) <i>p</i> <0.001	2.20** (2.02 - 2.40) <i>p</i> <0.001	1.60** (1.45 - 1.75) <i>p</i> <0.001
Type 1 Diabetes	4.49** (3.22 - 6.28) <i>p</i> <0.001		1.57* (1.05 - 2.34) <i>p</i> =0.027	1.46 (0.98 - 2.19) <i>p</i> =0.066	1.64* (1.06 - 2.55) <i>p</i> =0.027
Hypertension	1.01 (0.93 - 1.09) <i>p</i> =0.804		0.84** (0.77 - 0.93) <i>p</i> <0.001	0.88* (0.80 - 0.97) <i>p</i> =0.012	0.90* (0.81 - 1.00) <i>p</i> =0.045
Hyperlipidemia	0.90 (0.81 - 1.02) <i>p</i> =0.094		0.77** (0.68 - 0.88) <i>p</i> <0.001	0.86* (0.75 - 0.98) <i>p</i> =0.025	0.94 (0.81 - 1.08) <i>p</i> =0.387
Pulmonary Hypertension	0.79 (0.47 - 1.33) <i>p</i> =0.381		0.84 (0.49 - 1.46) <i>p</i> =0.537	0.80 (0.46 - 1.41) <i>p</i> =0.444	0.78 (0.41 - 1.50) <i>p</i> =0.461
COPD	0.87 (0.69 - 1.11) <i>p</i> =0.271		0.91 (0.71 - 1.17) <i>p</i> =0.471	0.93 (0.72 - 1.19) <i>p</i> =0.560	0.68** (0.52 - 0.88) <i>p</i> =0.004
Asthma	0.80* (0.67 - 0.95) <i>p</i> =0.013		0.88 (0.73 - 1.06) <i>p</i> =0.165	0.88 (0.73 - 1.05) <i>p</i> =0.160	0.68** (0.56 - 0.83) <i>p</i> <0.001
CAD	1.02 (0.85 - 1.23) <i>p</i> =0.824		0.92 (0.75 - 1.12) <i>p</i> =0.398	0.94 (0.77 - 1.16) <i>p</i> =0.578	1.07 (0.86 - 1.34) <i>p</i> =0.535
Heart Failure	1.03 (0.89 - 1.19) <i>p</i> =0.676		0.92 (0.78 - 1.08) <i>p</i> =0.305	0.94 (0.80 - 1.11) <i>p</i> =0.482	1.03 (0.87 - 1.23) <i>p</i> =0.716
Stroke/TIA	1.16 (0.88 - 1.53) <i>p</i> =0.298		1.04 (0.78 - 1.39) <i>p</i> =0.777	1.08 (0.81 - 1.44) <i>p</i> =0.604	1.36* (1.01 - 1.85) <i>p</i> =0.046
ESRD	1.56** (1.36 - 1.80) <i>p</i> <0.001		1.56** (1.34 - 1.83) <i>p</i> <0.001	1.47** (1.25 - 1.72) <i>p</i> <0.001	1.28** (1.08 - 1.52) <i>p</i> =0.004
Chronic Kidney Disease	1.17* (1.02 - 1.34) <i>p</i> =0.022		0.94 (0.81 - 1.10) <i>p</i> =0.430	0.92 (0.79 - 1.07) <i>p</i> =0.290	1.01 (0.85 - 1.19) <i>p</i> =0.945
Biguanides	0.74** (0.65 - 0.84) <i>p</i> <0.001			0.57** (0.50 - 0.65) <i>p</i> <0.001	0.67** (0.58 - 0.77) <i>p</i> <0.001
DPP4-inhibitors	1.04 (0.92 - 1.18) <i>p</i> =0.510			0.85* (0.74 - 0.98) <i>p</i> =0.021	0.93 (0.80 - 1.08) <i>p</i> =0.339
SGLT-2 inhibitors	0.80 (0.36 - 1.80) <i>p</i> =0.596			1.00 (0.42 - 2.37) <i>p</i> =0.999	1.02 (0.42 - 2.46) <i>p</i> =0.968
GLP-1 agonists	1.17 (0.81 - 1.69) <i>p</i> =0.388			1.20 (0.81 - 1.78) <i>p</i> =0.360	1.15 (0.77 - 1.74) <i>p</i> =0.490
Insulin	1.56** (1.45 - 1.66) <i>p</i> <0.001			1.15** (1.05 - 1.26) <i>p</i> =0.002	1.12* (1.02 - 1.23) <i>p</i> =0.021
ACE inhibitors	1.05 (0.97 - 1.14) <i>p</i> =0.245			0.94 (0.86 - 1.03) <i>p</i> =0.162	1.00 (0.91 - 1.10) <i>p</i> =0.994
Sulfonylureas	0.73* (0.55 - 0.95) <i>p</i> =0.022			0.67** (0.51 - 0.90) <i>p</i> =0.007	0.73* (0.54 - 1.00) <i>p</i> =0.049
Statins	1.07* (1.00 - 1.15) <i>p</i> =0.040			0.82** (0.75 - 0.89) <i>p</i> <0.001	0.74** (0.67 - 0.80) <i>p</i> <0.001
Heparin	2.43** (2.27 - 2.60) <i>p</i> <0.001				2.40** (2.21 - 2.61) <i>p</i> <0.001
Enoxaparin	1.73** (1.62 - 1.85) <i>p</i> <0.001				1.70** (1.55 - 1.86) <i>p</i> <0.001
Apixaban	1.69** (1.53 - 1.86) <i>p</i> <0.001				1.27** (1.13 - 1.43) <i>p</i> <0.001
Steroids	5.06** (4.71 - 5.43) <i>p</i> <0.001				3.36** (3.09 - 3.65) <i>p</i> <0.001
Tocilizumab	4.15** (3.53 - 4.89) <i>p</i> <0.001				1.39** (1.14 - 1.70) <i>p</i> =0.001
Remdesivir	4.50** (3.69 - 5.48) <i>p</i> <0.001				1.41** (1.12 - 1.78) <i>p</i> =0.004
Convalescent Plasma	9.08** (7.57 - 10.88) <i>p</i> <0.001				2.05** (1.63 - 2.58) <i>p</i> <0.001
Cafepime	5.25** (4.80 - 5.75) <i>p</i> <0.001				2.88** (2.60 - 3.19) <i>p</i> <0.001

**Table S7. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of ICU admission**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=11,371	n=11,371	n=11,371	n=11,371
	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value	OR (95% CI), p- value
Age per 10	1.05** (1.03 - 1.07) p<0.001	1.09** (1.06 - 1.12) p<0.001	1.05** (1.02 - 1.08) p<0.001	1.05** (1.02 - 1.08) p=0.001	0.99 (0.96 - 1.02) p=0.559
Male	1.41** (1.30 - 1.54) p<0.001	1.60** (1.46 - 1.76) p<0.001	1.60** (1.45 - 1.76) p<0.001	1.60** (1.45 - 1.76) p<0.001	1.38** (1.24 - 1.54) p<0.001
BMI	1.02** (1.02 - 1.03) p<0.001	1.03** (1.03 - 1.04) p<0.001	1.03** (1.02 - 1.03) p<0.001	1.03** (1.02 - 1.03) p<0.001	1.02** (1.02 - 1.03) p<0.001
Diabetic Ketoacidosis	5.81** (4.51 - 7.49) p<0.001	5.86** (4.45 - 7.72) p<0.001	3.77** (2.79 - 5.11) p<0.001	3.79** (2.78 - 5.18) p<0.001	5.02** (3.48 - 7.25) p<0.001
History of DM	2.60** (2.39 - 2.83) p<0.001		2.36** (2.14 - 2.60) p<0.001	2.63** (2.36 - 2.94) p<0.001	1.71** (1.51 - 1.94) p<0.001
Type 1 Diabetes	3.42** (2.12 - 5.51) p<0.001		0.86 (0.49 - 1.50) p=0.594	0.81 (0.46 - 1.44) p=0.479	0.89 (0.46 - 1.71) p=0.719
Hypertension	1.06 (0.96 - 1.17) p=0.269		0.91 (0.80 - 1.03) p=0.147	0.98 (0.86 - 1.12) p=0.767	0.95 (0.82 - 1.09) p=0.442
Hyperlipidemia	0.88 (0.76 - 1.02) p=0.102		0.74** (0.62 - 0.88) p=0.001	0.81* (0.68 - 0.97) p=0.021	0.91 (0.75 - 1.11) p=0.343
Pulmonary Hypertension	0.85 (0.41 - 1.76) p=0.664		0.84 (0.37 - 1.91) p=0.679	0.80 (0.35 - 1.83) p=0.593	0.82 (0.28 - 2.40) p=0.713
COPD	0.88 (0.64 - 1.20) p=0.421		1.04 (0.74 - 1.48) p=0.811	1.06 (0.75 - 1.49) p=0.758	0.85 (0.59 - 1.23) p=0.397
Asthma	0.76* (0.61 - 0.96) p=0.019		0.83 (0.65 - 1.06) p=0.135	0.83 (0.65 - 1.07) p=0.145	0.67** (0.51 - 0.88) p=0.004
CAD	1.02 (0.81 - 1.30) p=0.844		0.99 (0.76 - 1.30) p=0.964	1.01 (0.77 - 1.33) p=0.931	1.24 (0.92 - 1.69) p=0.158
Heart Failure	0.90 (0.74 - 1.09) p=0.286		0.76* (0.61 - 0.96) p=0.023	0.77* (0.61 - 0.97) p=0.028	0.96 (0.75 - 1.24) p=0.777
Stroke/TIA	1.10 (0.77 - 1.57) p=0.592		0.98 (0.67 - 1.43) p=0.919	1.00 (0.69 - 1.47) p=0.983	1.32 (0.88 - 1.98) p=0.177
ESRD	1.65** (1.38 - 1.98) p<0.001		1.77** (1.43 - 2.18) p<0.001	1.65** (1.33 - 2.04) p<0.001	1.21 (0.96 - 1.53) p=0.107
Chronic Kidney Disease	1.15 (0.96 - 1.37) p=0.131		0.85 (0.69 - 1.06) p=0.146	0.82 (0.66 - 1.02) p=0.073	0.90 (0.71 - 1.14) p=0.369
Biguanides	0.70** (0.60 - 0.82) p<0.001			0.50** (0.42 - 0.60) p<0.001	0.62** (0.51 - 0.76) p<0.001
DPP4-inhibitors	0.97 (0.83 - 1.14) p=0.728			0.81* (0.68 - 0.98) p=0.027	0.93 (0.76 - 1.15) p=0.519
SGLT-2 inhibitors	1.57 (0.65 - 3.83) p=0.317			1.99 (0.68 - 5.79) p=0.207	1.98 (0.55 - 7.12) p=0.296
GLP-1 agonists	1.13 (0.70 - 1.83) p=0.617			1.17 (0.68 - 2.01) p=0.577	1.16 (0.65 - 2.07) p=0.623
Insulin	1.57** (1.45 - 1.71) p<0.001			1.09 (0.97 - 1.22) p=0.154	1.12 (0.99 - 1.27) p=0.082
ACE inhibitors	1.01 (0.91 - 1.12) p=0.855			0.92 (0.81 - 1.04) p=0.178	1.04 (0.91 - 1.19) p=0.568
Sulfonylureas	0.69* (0.50 - 0.97) p=0.030			0.64* (0.44 - 0.94) p=0.022	0.63* (0.41 - 0.97) p=0.036
Statins	1.11** (1.03 - 1.21) p=0.010			0.94 (0.84 - 1.04) p=0.232	0.79** (0.70 - 0.89) p<0.001
Heparin	2.89** (2.66 - 3.15) p<0.001				2.51** (2.24 - 2.81) p<0.001
Enoxaparin	1.57** (1.44 - 1.72) p<0.001				1.54** (1.36 - 1.74) p<0.001
Apixaban	1.74** (1.55 - 1.95) p<0.001				1.15 (0.99 - 1.33) p=0.059
Steroids	6.84** (6.25 - 7.48) p<0.001				3.97** (3.56 - 4.43) p<0.001
Tocilizumab	3.26** (2.78 - 3.82) p<0.001				1.32** (1.07 - 1.61) p=0.008
Remdesivir	3.81** (3.12 - 4.65) p<0.001				1.33* (1.05 - 1.69) p=0.018
Convalescent Plasma	8.01** (6.67 - 9.61) p<0.001				2.00** (1.59 - 2.53) p<0.001
Cafepime	4.99** (4.49 - 5.55) p<0.001				2.74** (2.41 - 3.11) p<0.001

**Table S8. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of ICU admission**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
	OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value
Age per 10	1.03 (0.93 - 1.16) <i>p</i> =0.552	1.03 (0.91 - 1.15) <i>p</i> =0.671	1.10 (0.97 - 1.26) <i>p</i> =0.147	1.06 (0.92 - 1.21) <i>p</i> =0.435	1.00 (0.87 - 1.17) <i>p</i> =0.952
Male	0.72 (0.48 - 1.08) <i>p</i> =0.113	0.77 (0.50 - 1.18) <i>p</i> =0.236	0.75 (0.48 - 1.16) <i>p</i> =0.199	0.71 (0.45 - 1.12) <i>p</i> =0.137	0.65 (0.40 - 1.04) <i>p</i> =0.070
BMI	1.02 (0.99 - 1.05) <i>p</i> =0.140	1.02 (0.99 - 1.04) <i>p</i> =0.192	1.03* (1.00 - 1.06) <i>p</i> =0.047	1.02 (0.99 - 1.05) <i>p</i> =0.165	1.01 (0.98 - 1.05) <i>p</i> =0.376
Covid-19	1.28 (0.87 - 1.89) <i>p</i> =0.207	1.27 (0.86 - 1.88) <i>p</i> =0.231	1.21 (0.81 - 1.81) <i>p</i> =0.356	1.18 (0.77 - 1.80) <i>p</i> =0.448	1.19 (0.72 - 1.97) <i>p</i> =0.496
Type 1 Diabetes	1.38 (0.86 - 2.23) <i>p</i> =0.180		1.75* (1.02 - 3.01) <i>p</i> =0.041	2.03* (1.16 - 3.55) <i>p</i> =0.013	2.42** (1.35 - 4.37) <i>p</i> =0.003
Hypertension	0.77 (0.49 - 1.22) <i>p</i> =0.269		0.71 (0.41 - 1.23) <i>p</i> =0.216	0.84 (0.47 - 1.51) <i>p</i> =0.566	0.79 (0.42 - 1.49) <i>p</i> =0.463
Hyperlipidemia	1.13 (0.60 - 2.12) <i>p</i> =0.704		1.30 (0.64 - 2.64) <i>p</i> =0.474	1.34 (0.64 - 2.82) <i>p</i> =0.436	1.73 (0.74 - 4.06) <i>p</i> =0.208
Asthma	0.63 (0.21 - 1.91) <i>p</i> =0.412		0.63 (0.20 - 2.01) <i>p</i> =0.436	0.73 (0.20 - 2.64) <i>p</i> =0.632	0.56 (0.12 - 2.59) <i>p</i> =0.455
CAD	1.12 (0.18 - 6.77) <i>p</i> =0.904		1.28 (0.25 - 6.46) <i>p</i> =0.768	1.04 (0.24 - 4.49) <i>p</i> =0.962	1.07 (0.24 - 4.69) <i>p</i> =0.933
Heart Failure	0.32* (0.11 - 0.95) <i>p</i> =0.040		0.29* (0.09 - 0.91) <i>p</i> =0.034	0.34 (0.11 - 1.08) <i>p</i> =0.067	0.37 (0.10 - 1.40) <i>p</i> =0.145
Stroke/TIA	1.49 (0.13 - 16.63) <i>p</i> =0.745		1.64 (0.20 - 13.22) <i>p</i> =0.642	1.34 (0.16 - 11.10) <i>p</i> =0.786	1.85 (0.21 - 16.14) <i>p</i> =0.579
ESRD	0.73 (0.28 - 1.89) <i>p</i> =0.521		1.03 (0.38 - 2.85) <i>p</i> =0.948	0.94 (0.31 - 2.83) <i>p</i> =0.909	0.75 (0.22 - 2.53) <i>p</i> =0.643
Chronic Kidney Disease	0.68 (0.32 - 1.44) <i>p</i> =0.309		0.89 (0.37 - 2.13) <i>p</i> =0.798	0.85 (0.33 - 2.14) <i>p</i> =0.725	0.74 (0.30 - 1.84) <i>p</i> =0.516
beguanides	0.68 (0.38 - 1.23) <i>p</i> =0.202			0.68 (0.36 - 1.31) <i>p</i> =0.249	0.80 (0.41 - 1.57) <i>p</i> =0.515
DPP4-inhibitors	1.20 (0.74 - 1.95) <i>p</i> =0.450			1.21 (0.69 - 2.13) <i>p</i> =0.502	1.33 (0.71 - 2.49) <i>p</i> =0.374
glp1	1.49 (0.13 - 16.63) <i>p</i> =0.745			1.53 (0.04 - 62.48) <i>p</i> =0.823	1.45 (0.01 - 232.09) <i>p</i> =0.885
insulin	0.44** (0.28 - 0.68) <i>p</i> <0.001			0.44** (0.27 - 0.71) <i>p</i> =0.001	0.43** (0.26 - 0.72) <i>p</i> =0.001
ACE inhibitors	0.81 (0.53 - 1.23) <i>p</i> =0.314			0.82 (0.51 - 1.32) <i>p</i> =0.409	0.71 (0.42 - 1.21) <i>p</i> =0.208
Sulfonylureas	4.55 (0.54 - 38.23) <i>p</i> =0.163			4.74 (0.54 - 41.43) <i>p</i> =0.159	5.36 (0.43 - 66.75) <i>p</i> =0.192
Statins	1.25 (0.85 - 1.84) <i>p</i> =0.262			1.61 (0.99 - 2.60) <i>p</i> =0.053	1.72* (1.03 - 2.87) <i>p</i> =0.038
Heparin	2.43** (1.63 - 3.63) <i>p</i> <0.001				1.73* (1.00 - 2.98) <i>p</i> =0.050
E0xaparin	0.61* (0.41 - 0.91) <i>p</i> =0.016				0.53* (0.29 - 0.96) <i>p</i> =0.038
Apixaban	1.22 (0.59 - 2.51) <i>p</i> =0.588				0.97 (0.36 - 2.62) <i>p</i> =0.947
Steroids	3.66** (2.11 - 6.34) <i>p</i> <0.001				3.15** (1.60 - 6.22) <i>p</i> =0.001
Tocilizumab	4.64* (1.02 - 21.05) <i>p</i> =0.046				1.43 (0.17 - 12.09) <i>p</i> =0.740
Remdesivir	0.74 (0.10 - 5.33) <i>p</i> =0.766				0.20 (0.03 - 1.21) <i>p</i> =0.080
Convalescent Plasma	2.54 (0.69 - 9.39) <i>p</i> =0.161				1.09 (0.20 - 6.00) <i>p</i> =0.917
Cefepime	2.28** (1.24 - 4.19) <i>p</i> =0.008				1.64 (0.80 - 3.36) <i>p</i> =0.175

**Table S9. Baseline patient characteristics: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
		n=22,694	n=22,694	n=22,694	n=22,694
	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value	OR (95% CI), <i>p</i> - value
Age per 10	1.10** (1.07 - 1.12) <i>p</i> <0.001	1.13** (1.10 - 1.16) <i>p</i> <0.001	1.09** (1.05 - 1.13) <i>p</i> <0.001	1.03 (0.99 - 1.07) <i>p</i> =0.177	0.95** (0.91 - 0.99) <i>p</i> =0.010
Male	1.44** (1.29 - 1.61) <i>p</i> <0.001	1.51** (1.35 - 1.69) <i>p</i> <0.001	1.58** (1.39 - 1.80) <i>p</i> <0.001	1.58** (1.39 - 1.81) <i>p</i> <0.001	1.47** (1.28 - 1.70) <i>p</i> <0.001
BMI	1.00 (1.00 - 1.01) <i>p</i> =0.147	1.02** (1.01 - 1.02) <i>p</i> <0.001	1.02** (1.01 - 1.03) <i>p</i> <0.001	1.02** (1.01 - 1.03) <i>p</i> <0.001	1.02** (1.01 - 1.03) <i>p</i> <0.001
Covid-19	2.12** (1.89 - 2.37) <i>p</i> <0.001	2.13** (1.90 - 2.39) <i>p</i> <0.001	2.77** (2.42 - 3.16) <i>p</i> <0.001	2.89** (2.52 - 3.31) <i>p</i> <0.001	2.43** (2.09 - 2.83) <i>p</i> <0.001
Diabetic Ketoacidosis	1.47* (1.05 - 2.06) <i>p</i> =0.026	1.59** (1.13 - 2.23) <i>p</i> =0.008	1.21 (0.77 - 1.91) <i>p</i> =0.406	1.13 (0.71 - 1.79) <i>p</i> =0.612	0.96 (0.61 - 1.50) <i>p</i> =0.854
History of DM	2.75** (2.46 - 3.08) <i>p</i> <0.001		2.38** (2.08 - 2.72) <i>p</i> <0.001	2.05** (1.75 - 2.42) <i>p</i> <0.001	1.61** (1.37 - 1.91) <i>p</i> <0.001
Type 1 Diabetes	1.27 (0.68 - 2.35) <i>p</i> =0.455		0.91 (0.38 - 2.20) <i>p</i> =0.835	0.79 (0.33 - 1.89) <i>p</i> =0.595	0.89 (0.37 - 2.16) <i>p</i> =0.794
Hypertension	2.05** (1.83 - 2.29) <i>p</i> <0.001		0.90 (0.77 - 1.05) <i>p</i> =0.182	0.93 (0.79 - 1.09) <i>p</i> =0.346	0.99 (0.83 - 1.18) <i>p</i> =0.904
Hyperlipidemia	1.26** (1.06 - 1.49) <i>p</i> =0.008		0.66** (0.53 - 0.82) <i>p</i> <0.001	0.66** (0.52 - 0.82) <i>p</i> <0.001	0.73* (0.58 - 0.93) <i>p</i> =0.012
Pulmonary Hypertension	2.77** (1.64 - 4.66) <i>p</i> <0.001		1.39 (0.73 - 2.67) <i>p</i> =0.316	1.27 (0.65 - 2.47) <i>p</i> =0.487	1.35 (0.61 - 2.97) <i>p</i> =0.457
COPD	1.33 (0.95 - 1.85) <i>p</i> =0.095		0.87 (0.59 - 1.29) <i>p</i> =0.493	0.89 (0.60 - 1.31) <i>p</i> =0.547	0.79 (0.54 - 1.17) <i>p</i> =0.247
Asthma	0.67* (0.49 - 0.91) <i>p</i> =0.011		0.52** (0.36 - 0.76) <i>p</i> =0.001	0.58** (0.40 - 0.83) <i>p</i> =0.003	0.51** (0.34 - 0.76) <i>p</i> =0.001
CAD	1.93** (1.52 - 2.45) <i>p</i> <0.001		0.91 (0.67 - 1.22) <i>p</i> =0.516	0.79 (0.59 - 1.07) <i>p</i> =0.127	0.76 (0.55 - 1.03) <i>p</i> =0.079
Heart Failure	2.63** (2.22 - 3.12) <i>p</i> <0.001		1.10 (0.87 - 1.40) <i>p</i> =0.430	1.05 (0.82 - 1.34) <i>p</i> =0.693	1.09 (0.85 - 1.40) <i>p</i> =0.501
Stroke/TIA	1.09 (0.70 - 1.71) <i>p</i> =0.698		0.59* (0.38 - 0.91) <i>p</i> =0.018	0.54** (0.36 - 0.83) <i>p</i> =0.005	0.61 (0.37 - 1.01) <i>p</i> =0.053
ESRD	30.38** (26.40 - 34.96) <i>p</i> <0.001		34.22** (28.62 - 40.91) <i>p</i> <0.001	29.27** (24.40 - 35.12) <i>p</i> <0.001	27.83** (22.77 - 34.03) <i>p</i> <0.001
Chronic Kidney Disease	3.92** (3.38 - 4.55) <i>p</i> <0.001		1.12 (0.88 - 1.43) <i>p</i> =0.346	1.03 (0.81 - 1.32) <i>p</i> =0.786	1.01 (0.79 - 1.30) <i>p</i> =0.930
Biguanides	0.26** (0.19 - 0.36) <i>p</i> <0.001			0.20** (0.14 - 0.28) <i>p</i> <0.001	0.22** (0.15 - 0.31) <i>p</i> <0.001
DPP4-inhibitors	1.45** (1.22 - 1.73) <i>p</i> <0.001			1.00 (0.79 - 1.27) <i>p</i> =0.989	1.04 (0.81 - 1.33) <i>p</i> =0.758
SGLT-2 inhibitors	0.34 (0.05 - 2.48) <i>p</i> =0.288			0.90 (0.11 - 7.38) <i>p</i> =0.919	0.89 (0.11 - 7.35) <i>p</i> =0.916
GLP-1 agonists	0.72 (0.35 - 1.47) <i>p</i> =0.366			0.61 (0.23 - 1.62) <i>p</i> =0.324	0.57 (0.22 - 1.48) <i>p</i> =0.250
Insulin	2.79** (2.51 - 3.12) <i>p</i> <0.001			1.68** (1.43 - 1.97) <i>p</i> <0.001	1.64** (1.39 - 1.93) <i>p</i> <0.001
ACE inhibitors	1.22** (1.08 - 1.39) <i>p</i> =0.001			0.72** (0.61 - 0.84) <i>p</i> <0.001	0.72** (0.61 - 0.85) <i>p</i> <0.001
Sulfonylureas	0.55* (0.32 - 0.92) <i>p</i> =0.022			0.44** (0.24 - 0.82) <i>p</i> =0.009	0.55* (0.31 - 0.99) <i>p</i> =0.048
Statins	2.39** (2.13 - 2.67) <i>p</i> <0.001			1.76** (1.52 - 2.05) <i>p</i> <0.001	1.66** (1.42 - 1.94) <i>p</i> <0.001
Heparin	7.56** (6.53 - 8.75) <i>p</i> <0.001				5.26** (4.43 - 6.25) <i>p</i> <0.001
Enoxaparin	0.62** (0.56 - 0.69) <i>p</i> <0.001				0.68** (0.58 - 0.80) <i>p</i> <0.001
Apixaban	2.18** (1.90 - 2.50) <i>p</i> <0.001				1.60** (1.33 - 1.92) <i>p</i> <0.001
Steroids	2.62** (2.34 - 2.92) <i>p</i> <0.001				1.89** (1.63 - 2.21) <i>p</i> <0.001
Tocilizumab	1.70** (1.30 - 2.23) <i>p</i> <0.001				0.61** (0.43 - 0.86) <i>p</i> =0.005
Remdesivir	1.18 (0.81 - 1.72) <i>p</i> =0.380				0.49** (0.32 - 0.77) <i>p</i> =0.002
Convalescent Plasma	4.22** (3.41 - 5.22) <i>p</i> <0.001				1.97** (1.46 - 2.64) <i>p</i> <0.001
Cafepime	4.54** (4.02 - 5.12) <i>p</i> <0.001				2.76** (2.35 - 3.24) <i>p</i> <0.001

**Table S10. COVID-19 Cohort: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
	OR (95% CI), <i>p</i> - value	<i>n</i> =11,371 OR (95% CI), <i>p</i> - value	<i>n</i> =11,371 OR (95% CI), <i>p</i> - value	<i>n</i> =11,371 OR (95% CI), <i>p</i> - value	<i>n</i> =11,371 OR (95% CI), <i>p</i> - value
Age per 10	1.08** (1.05 - 1.11) <i>p</i> <0.001	1.12** (1.08 - 1.15) <i>p</i> <0.001	1.07** (1.02 - 1.11) <i>p</i> =0.002	1.01 (0.97 - 1.06) <i>p</i> =0.574	0.93** (0.88 - 0.98) <i>p</i> =0.004
Male	1.51** (1.31 - 1.73) <i>p</i> <0.001	1.64** (1.42 - 1.89) <i>p</i> <0.001	1.79** (1.53 - 2.11) <i>p</i> <0.001	1.81** (1.53 - 2.13) <i>p</i> <0.001	1.64** (1.37 - 1.96) <i>p</i> <0.001
BMI	1.01* (1.00 - 1.02) <i>p</i> =0.016	1.02** (1.01 - 1.03) <i>p</i> <0.001	1.03** (1.02 - 1.04) <i>p</i> <0.001	1.03** (1.02 - 1.04) <i>p</i> <0.001	1.03** (1.02 - 1.04) <i>p</i> <0.001
Diabetic Ketoacidosis	1.56* (1.05 - 2.31) <i>p</i> =0.027	1.67* (1.12 - 2.47) <i>p</i> =0.011	1.31 (0.76 - 2.26) <i>p</i> =0.337	1.21 (0.69 - 2.12) <i>p</i> =0.505	1.08 (0.64 - 1.84) <i>p</i> =0.770
History of DM	2.75** (2.40 - 3.14) <i>p</i> <0.001		2.36** (2.00 - 2.77) <i>p</i> <0.001	2.14** (1.76 - 2.59) <i>p</i> <0.001	1.54** (1.26 - 1.88) <i>p</i> <0.001
Type 1 Diabetes	1.17 (0.51 - 2.72) <i>p</i> =0.708		0.80 (0.25 - 2.54) <i>p</i> =0.711	0.74 (0.23 - 2.31) <i>p</i> =0.600	0.84 (0.23 - 3.05) <i>p</i> =0.788
Hypertension	2.02** (1.76 - 2.32) <i>p</i> <0.001		0.92 (0.75 - 1.12) <i>p</i> =0.403	0.94 (0.77 - 1.16) <i>p</i> =0.576	0.96 (0.77 - 1.20) <i>p</i> =0.708
Hyperlipidemia	1.18 (0.95 - 1.45) <i>p</i> =0.129		0.61** (0.46 - 0.81) <i>p</i> =0.001	0.58** (0.43 - 0.78) <i>p</i> <0.001	0.66* (0.48 - 0.91) <i>p</i> =0.011
Pulmonary Hypertension	3.30** (1.64 - 6.65) <i>p</i> =0.001		1.60 (0.70 - 3.67) <i>p</i> =0.267	1.65 (0.68 - 3.96) <i>p</i> =0.266	2.42 (0.76 - 7.67) <i>p</i> =0.133
COPD	1.75** (1.19 - 2.56) <i>p</i> =0.004		1.09 (0.70 - 1.69) <i>p</i> =0.705	1.06 (0.67 - 1.67) <i>p</i> =0.803	1.06 (0.65 - 1.71) <i>p</i> =0.822
Asthma	0.80 (0.56 - 1.14) <i>p</i> =0.224		0.59* (0.38 - 0.92) <i>p</i> =0.021	0.64 (0.40 - 1.00) <i>p</i> =0.052	0.56* (0.33 - 0.95) <i>p</i> =0.030
CAD	1.92** (1.42 - 2.58) <i>p</i> <0.001		0.94 (0.63 - 1.40) <i>p</i> =0.765	0.82 (0.55 - 1.23) <i>p</i> =0.339	0.84 (0.57 - 1.25) <i>p</i> =0.401
Heart Failure	2.94** (2.38 - 3.62) <i>p</i> <0.001		1.18 (0.87 - 1.60) <i>p</i> =0.284	1.10 (0.81 - 1.50) <i>p</i> =0.548	1.28 (0.93 - 1.76) <i>p</i> =0.134
Stroke/TIA	0.97 (0.55 - 1.72) <i>p</i> =0.923		0.55* (0.33 - 0.94) <i>p</i> =0.028	0.49** (0.29 - 0.83) <i>p</i> =0.008	0.51* (0.28 - 0.92) <i>p</i> =0.026
ESRD	28.02** (23.26 - 33.74) <i>p</i> <0.001		29.75** (23.46 - 37.73) <i>p</i> <0.001	27.50** (21.58 - 35.04) <i>p</i> <0.001	22.71** (17.21 - 29.96) <i>p</i> <0.001
Chronic Kidney Disease	3.92** (3.25 - 4.74) <i>p</i> <0.001		1.33 (0.97 - 1.82) <i>p</i> =0.078	1.20 (0.87 - 1.66) <i>p</i> =0.264	1.21 (0.88 - 1.67) <i>p</i> =0.232
Biguanides	0.36** (0.26 - 0.51) <i>p</i> <0.001			0.26** (0.18 - 0.37) <i>p</i> <0.001	0.31** (0.20 - 0.47) <i>p</i> <0.001
DPP4-inhibitors	1.59** (1.29 - 1.96) <i>p</i> <0.001			1.24 (0.93 - 1.66) <i>p</i> =0.136	1.32 (0.95 - 1.81) <i>p</i> =0.094
SGLT-2 inhibitors	0.55 (0.07 - 4.09) <i>p</i> =0.560			1.20 (0.13 - 10.79) <i>p</i> =0.871	1.30 (0.13 - 13.28) <i>p</i> =0.825
GLP-1 agonists	1.00 (0.46 - 2.16) <i>p</i> =0.997			0.58 (0.17 - 1.98) <i>p</i> =0.382	0.58 (0.18 - 1.85) <i>p</i> =0.357
Insulin	2.37** (2.08 - 2.70) <i>p</i> <0.001			1.44** (1.19 - 1.75) <i>p</i> <0.001	1.44** (1.18 - 1.75) <i>p</i> <0.001
ACE inhibitors	1.36** (1.17 - 1.58) <i>p</i> <0.001			0.77** (0.63 - 0.94) <i>p</i> =0.008	0.79* (0.64 - 0.97) <i>p</i> =0.028
Sulfonylureas	0.67 (0.39 - 1.16) <i>p</i> =0.154			0.53 (0.26 - 1.07) <i>p</i> =0.078	0.64 (0.32 - 1.29) <i>p</i> =0.213
Statins	2.19** (1.92 - 2.50) <i>p</i> <0.001			1.73** (1.45 - 2.07) <i>p</i> <0.001	1.60** (1.33 - 1.94) <i>p</i> <0.001
Heparin	10.53** (8.74 - 12.68) <i>p</i> <0.001				6.97** (5.57 - 8.72) <i>p</i> <0.001
Enoxaparin	0.50** (0.44 - 0.57) <i>p</i> <0.001				0.65** (0.54 - 0.78) <i>p</i> <0.001
Apixaban	2.24** (1.92 - 2.62) <i>p</i> <0.001				1.54** (1.24 - 1.91) <i>p</i> <0.001
Steroids	3.25** (2.86 - 3.71) <i>p</i> <0.001				2.21** (1.84 - 2.67) <i>p</i> <0.001
Tocilizumab	1.45** (1.12 - 1.87) <i>p</i> =0.005				0.60** (0.43 - 0.84) <i>p</i> =0.003
Remdesivir	0.96 (0.66 - 1.41) <i>p</i> =0.847				0.50** (0.32 - 0.77) <i>p</i> =0.002
Convalescent Plasma	3.61** (2.91 - 4.47) <i>p</i> <0.001				1.86** (1.38 - 2.49) <i>p</i> <0.001
Cafepime	4.70** (4.09 - 5.40) <i>p</i> <0.001				2.84** (2.36 - 3.42) <i>p</i> <0.001

**Table S11. DKA Cohort: Univariate and multivariate logistic regression analysis for the outcome of Renal Replacement Therapy**

Variables	Univariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis	Multivariate Analysis
		Model 1	Model 2	Model 3	Model 4
	OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value	<i>n</i> =422 OR (95% CI), <i>p</i> - value
Age per 10	1.10 (0.92 - 1.33) <i>p</i> =0.291	1.10 (0.90 - 1.33) <i>p</i> =0.354	1.04 (0.83 - 1.31) <i>p</i> =0.735	1.01 (0.78 - 1.32) <i>p</i> =0.924	0.91 (0.66 - 1.24) <i>p</i> =0.545
Male	1.03 (0.51 - 2.08) <i>p</i> =0.933	1.41 (0.65 - 3.06) <i>p</i> =0.383	1.64 (0.70 - 3.85) <i>p</i> =0.252	1.62 (0.64 - 4.13) <i>p</i> =0.309	2.98 (0.58 - 15.23) <i>p</i> =0.190
BMI	1.04* (1.00 - 1.07) <i>p</i> =0.029	1.05** (1.01 - 1.08) <i>p</i> =0.006	1.06* (1.01 - 1.11) <i>p</i> =0.010	1.06** (1.02 - 1.11) <i>p</i> =0.008	1.07* (1.00 - 1.14) <i>p</i> =0.036
Covid-19	2.83** (1.34 - 5.99) <i>p</i> =0.007	2.92** (1.33 - 6.41) <i>p</i> =0.008	3.85** (1.59 - 9.30) <i>p</i> =0.003	3.86** (1.61 - 9.26) <i>p</i> =0.003	1.22 (0.46 - 3.26) <i>p</i> =0.689
Type 1 Diabetes	0.28* (0.08 - 0.93) <i>p</i> =0.038		0.31 (0.06 - 1.74) <i>p</i> =0.184	0.33 (0.06 - 1.86) <i>p</i> =0.206	0.51 (0.09 - 2.84) <i>p</i> =0.444
Hypertension	1.58 (0.76 - 3.25) <i>p</i> =0.219		1.04 (0.33 - 3.26) <i>p</i> =0.941	1.03 (0.35 - 3.04) <i>p</i> =0.961	0.86 (0.24 - 3.10) <i>p</i> =0.812
Hyperlipidemia	0.70 (0.21 - 2.37) <i>p</i> =0.565		0.33 (0.06 - 1.74) <i>p</i> =0.193	0.37 (0.08 - 1.82) <i>p</i> =0.222	0.21 (0.01 - 5.41) <i>p</i> =0.350
CAD	2.57 (0.28 - 23.64) <i>p</i> =0.405		1.38 (0.20 - 9.40) <i>p</i> =0.739	1.38 (0.22 - 8.78) <i>p</i> =0.735	1.82 (0.22 - 14.86) <i>p</i> =0.577
Heart Failure	1.47 (0.32 - 6.73) <i>p</i> =0.621		0.19 (0.01 - 3.78) <i>p</i> =0.279	0.17 (0.01 - 3.61) <i>p</i> =0.254	1.24 (0.09 - 17.85) <i>p</i> =0.876
ESRD	9.97** (3.66 - 27.18) <i>p</i> <0.001		20.26** (3.76 - 109.18) <i>p</i> <0.001	16.66** (3.12 - 88.85) <i>p</i> =0.001	66.22** (7.54 - 581.41) <i>p</i> <0.001
Chronic Kidney Disease	3.72** (1.47 - 9.39) <i>p</i> =0.006		5.14* (1.35 - 19.55) <i>p</i> =0.016	5.01* (1.27 - 19.76) <i>p</i> =0.021	2.74 (0.80 - 9.38) <i>p</i> =0.108
beguanides	0.60 (0.18 - 2.03) <i>p</i> =0.411			0.63 (0.17 - 2.29) <i>p</i> =0.483	1.41 (0.24 - 8.24) <i>p</i> =0.703
DPP4-inhibitors	1.90 (0.92 - 3.95) <i>p</i> =0.084			1.44 (0.57 - 3.64) <i>p</i> =0.447	2.46 (0.86 - 7.06) <i>p</i> =0.094
insulin	1.00 (0.49 - 2.04) <i>p</i> =0.993			1.22 (0.55 - 2.70) <i>p</i> =0.626	1.62 (0.58 - 4.54) <i>p</i> =0.360
ACE inhibitors	0.61 (0.27 - 1.37) <i>p</i> =0.230			0.54 (0.19 - 1.52) <i>p</i> =0.245	0.40 (0.13 - 1.25) <i>p</i> =0.115
Statins	1.73 (0.87 - 3.45) <i>p</i> =0.118			1.47 (0.58 - 3.72) <i>p</i> =0.416	1.44 (0.50 - 4.12) <i>p</i> =0.499
Heparin	13.85** (3.28 - 58.46) <i>p</i> <0.001				14.48* (1.45 - 144.34) <i>p</i> =0.023
E0xaparin	0.65 (0.33 - 1.27) <i>p</i> =0.207				1.00 (0.31 - 3.20) <i>p</i> =0.995
Apixaban	3.67** (1.53 - 8.82) <i>p</i> =0.004				0.92 (0.23 - 3.71) <i>p</i> =0.902
Steroids	12.05** (5.68 - 25.53) <i>p</i> <0.001				15.94** (4.80 - 52.93) <i>p</i> <0.001
Tocilizumab	8.81** (2.88 - 27.00) <i>p</i> <0.001				2.59 (0.34 - 19.54) <i>p</i> =0.355
Remdesivir	3.43 (0.35 - 33.93) <i>p</i> =0.291				0.50 (0.04 - 7.06) <i>p</i> =0.608
Convalescent Plasma	10.10** (3.20 - 31.89) <i>p</i> <0.001				3.57 (0.47 - 27.19) <i>p</i> =0.219
Cefepime	4.29** (2.07 - 8.88) <i>p</i> <0.001				3.01* (1.05 - 8.62) <i>p</i> =0.041