

**MEDJ, Volume 1**

**Supplemental Information**

**Outcomes of Hydroxychloroquine Usage in United  
States Veterans Hospitalized with COVID-19**

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## **Supplementary material**

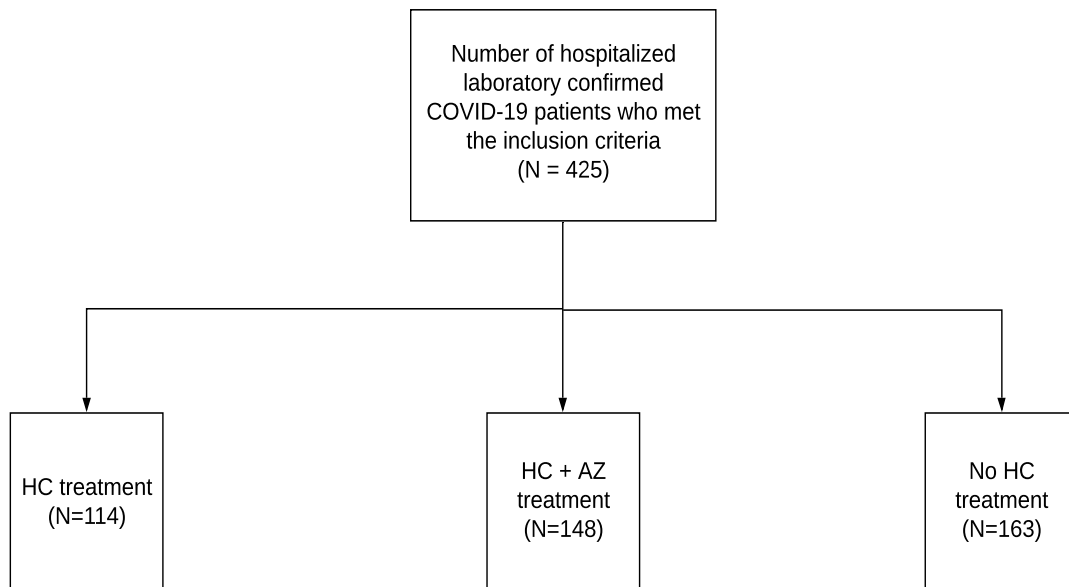
**Figure S1:** Distribution of Study cohorts and outcomes in the subcohort of 425 hospitalized COVID-19 patients, related to Figure 1

**Table S2:** Treatment outcomes in the subcohort of 425 hospitalized COVID-19 patients, related to Table 2

**Table S3:** Adjusted Hazard Ratios for the subcohort of 425 hospitalized COVID-19 patients using the time-dependent Cox Proportional Hazards model after propensity score adjustment, related to Table 3

**Table S4:** ICD-10-PCS and CPT codes used to define mechanical and invasive ventilation, related to STAR methods section “outcomes and exposure codes”

**Figure S1: Distribution of study cohorts and outcomes in the subcohort of 425 hospitalized COVID-19 patients, related to Figure 1**



Abbreviation: HC, Hydroxychloroquine; AZ, Azithromycin;

**Table S2: Treatment outcomes in the subcohort of 425 hospitalized COVID-19 patients, related to Table 2**

<b>HC treatment initiated at any time during the hospitalization period</b>				
<b>Outcome</b>	<b>HC (n=114)</b>	<b>HC+ AZ (n=148)</b>	<b>No HC (n=163)</b>	<b>P value</b>
Death - No. (%)	30(26.3)	39(26.4)	18(11.1)	<0.001
Discharge - No. (%)	84(73.7)	109(73.7)	145(89.0)	<0.001
<b>HC treatment initiated before mechanical ventilation<sup>a,b</sup></b>				
<b>Outcome</b>	<b>HC (n=99)</b>	<b>HC+AZ (n=117)</b>	<b>No HC (n=209)</b>	<b>P value</b>
Ventilation - No. (%)	20(20.2)	21(18.0)	57(27.3)	0.12
Death before mechanical ventilation - No. (%)	6(6.1)	5(4.3)	14(6.7)	0.67
Death after mechanical ventilation - No. (%)	13 (13.1)	14 (12.0)	35 (16.8)	0.45
Overall Death <sup>c</sup> – No. (%)	19 (19.2)	19 (16.2)	49 (23.4)	0.28
Discharge before mechanical ventilation - No. (%)	73(73.7)	91(77.8)	138(66.0)	0.06
Discharge after mechanical ventilation - No. (%)	7 (7.1)	7 (6.0)	22 (10.5)	0.31
<b>HC treatment initiated before invasive mechanical ventilation<sup>a</sup></b>				
<b>Outcome</b>	<b>HC (n=98)</b>	<b>HC+AZ (n=116)</b>	<b>No HC (n=211)</b>	<b>P value</b>
Invasive ventilation - No. (%)	19(19.4)	20(17.2)	45(21.3)	0.67
Death before invasive ventilation - No. (%)	6(6.1)	5(4.3)	15(7.1)	0.60
Death after invasive ventilation - No. (%)	14 (14.3)	16(13.8)	31(14.7)	0.98
Overall Death <sup>c</sup> – No. (%)	20 (20.4)	21 (18.1)	46 (21.8)	0.73
Discharge before invasive ventilation - No. (%)	73(74.5)	91(78.5)	151(71.6)	0.40
Discharge after invasive ventilation - No. (%)	5 (5.1)	4 (3.5)	14 (6.6)	0.47
<b>HC treatment initiated after mechanical ventilation<sup>b,d</sup></b>				
<b>Outcome</b>	<b>HC (n=23)</b>	<b>HC+AZ (n=23)</b>	<b>No HC (n=11)</b>	<b>P value</b>
Death - No. (%)	15(65.2)	16(69.6)	4(36.4)	0.16
Discharge - No. (%)	8(34.8)	7(30.4)	7(63.6)	0.16

Abbreviation: HC, Hydroxychloroquine; AZ, Azithromycin

<sup>a</sup> Patients may be in more than one category (e.g. Ventilation and Discharge after mechanical ventilation)

<sup>b</sup> Mechanical ventilation includes both non-invasive and invasive mechanical ventilation

<sup>c</sup> Overall death includes patients who died before and after mechanical ventilation

<sup>d</sup> Patients who received hydroxychloroquine before mechanical ventilation were excluded

**Table S3: Adjusted Hazard Ratios for the subcohort of 425 hospitalized COVID-19 patients using the time-dependent Cox Proportional Hazards model after propensity score adjustment, related to Table 3**

		Mechanical ventilation <sup>a</sup>		Invasive ventilation		Death		Death after mechanical ventilation <sup>a</sup>		Death after invasive ventilation	
		aHR (95% CI)	P value	aHR (95% CI)	P value	aHR (95% CI)	P value	aHR (95% CI)	P value	aHR (95% CI)	P value
HC	Vs. No HC	1.36 (0.78-2.39)	0.28	1.15 (0.62-2.12)	0.66	0.99 (0.50-1.92)	0.98	2.05 (0.64-6.55)	0.23	1.88 (0.60-5.89)	0.28
HC+AZ		1.14 (0.62-2.09)	0.67	1.21 (0.65-2.30)	0.55	0.89 (0.45-1.77)	0.74	2.01 (0.65-6.28)	0.23	2.14 (0.67-6.86)	0.20

Abbreviations: aHR, adjusted hazard ratio; HC, hydroxychloroquine; AZ, azithromycin; HR, hazard ratio  
<sup>a</sup> Mechanical ventilation includes both non-invasive and invasive mechanical ventilation

**Table S4: ICD-10-PCS and CPT codes used to define mechanical and invasive ventilation, related to STAR methods section “outcomes and exposure codes”**

	<b>ICD-10-PCS</b>	<b>CPT</b>
Mechanical Ventilation (Noninvasive + Invasive ventilation)	5A09557; 5A09558; 5A09559; 5A0955B; 5A0955Z; 5A09457; 5A09458; 5A09459; 5A0945B; 5A0945Z; 5A09357; 5A09358; 5A09359; 5A0935B; 5A0935Z; Z99.11; 0BH13EZ; 0BH17EZ; 0BH18EZ; 5A1935Z; 5A1945Z; 5A1955Z; 0B110F4; 0B110Z4; 0B113F4; 0B113Z4; 0B114F4; 0B114Z4; 09HN7BZ; 09HN8BZ	31500; 94660; 94662; 94002; 94003
Invasive Ventilation	0BH13EZ; 0BH17EZ; 0BH18EZ; 5A1935Z; 5A1945Z; 5A1955Z; 0B110F4; 0B110Z4; 0B113F4; 0B113Z4; 0B114F4; 0B114Z4; 09HN7BZ; 09HN8BZ	31500