endpoint was 28-day mortality. Secondary objectives of this study were to measure progression to IMV, pulse oximetry (SpO2)/fraction of inspired oxygen (FiO2) from hospitalization to discharge, hospital length of stay (LOS), 14-day mortality, 14-day hospital readmissions, inflammatory markers, and safety outcomes.

Results. Among patients receiving supplemental oxygen without IMV, 28-day mortality for triple therapy vs. dual therapy was 20% and 24%, respectively (P=1.000). The effect of triple therapy compared to dual therapy on lung function was demonstrated by a 76% vs. 25% increase in SpO2/FiO2. This benefit must be contextualized by an increased progression to IMV among patients receiving triple therapy compared to dual therapy (10 patients [50%] vs. 7 patients [28%], respectively; P=0.130). The increased incidence of IMV translated to a significantly longer hospital LOS among patients receiving triple therapy compared to dual therapy (26 days vs. 17 days, respectively; P=0.001).

Conclusion. In patients receiving supplemental oxygen without IMV for SARS-CoV-2, triple therapy was not associated with a clinically meaningful reduction in 28-day mortality when compared to dual therapy.

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508. Title Favipiravir for the Treatment of Coronavirus Disease 2019; A Propensity Score Matched Cohort Study

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Session: P-24. COVID-19 Treatment

Background. We investigated clinical outcomes of favipiravir in patients with COVID-19 pneumonia.

Methods. Patients who between 23 May 2020 and 18 July 2020 received ≥24 hours of favipiravir were assigned to the favipiravir group, while those who did not formed the non-favipiravir group. The primary outcome was 28-day clinical improvement, defined as two-category improvement from baseline on an 8-point ordinal scale. Propensity scores (PS) for favipiravir therapy were used for 1:1 matching. Cox regression was used to examine associations with the primary endpoint.

Results. The unmatched cohort included 1,493 patients, of which 51.7% were in the favipiravir group, and 48.3% were not receiving supplemental oxygen at baseline (table 1). Favipiravir was started within a median of 5 days from symptoms onset. Significant baseline differences between the two unmatched groups existed, but not between the PSmatched groups (N = 774) (table 1). After PS-matching, there were no significant differences between the two groups in the proportion with 28-day clinical improvement (93.3% versus 92.8%, P 0.780), or 28-day all-cause mortality (2.1% versus 3.1%, P 0.360) (Table 2). Favipiravir was associated with more viral clearance by day 28 (79.8% versus 64.1%, P < 0.001) (table 2). In the adjusted Cox proportional hazards model, favipiravir therapy was not associated 28-day clinical improvement (adjusted hazard ratio 0.978, 95% confidence interval 0.862 –1.109, P 0.726) (Table 3).

Table 1. Baseline characteristics before and after propensity-score matching

	Unmatched cohort (n = 1,493)			Propensity-score matched cohort (n = 774)		
Variable	Favipiravir group (n = 772)	Non-favipiravir group (n = 721)	P value	Favipiravir group (n = 387)	Non-favipiravir group (n = 387)	P value
Male sex	624 (80.8%)	599 (83.1%)	0.260*	312 (80.6%)	312 (80.6%)	1.000*
Age (years)	48 (39.50–57)	44 (37–54)	<0.001§	47 (38–55)	46 (38–57)	0.950§
Nationality by WHO region			<0.001†			0.35†
Chronic kidney disease	31 (4%)	54 (7.5%)	0.004*	20 (5.2%)	25 (6.5%)	0.440*
Cancer	15 (1.9%)	3 (0.4%)	0.008†	1 (0.3%)	1 (0.3%)	1.000*
Systolic blood pressure (mmHg)	115 (106–126)	108 (100–119)	<0.001§	111 (104–121)	112 (102–122)	0.800§
Temperature (Celsius)	38 (37.2–38.6)	38 (37.4–38.9)	<0.001§	38 (37.2–38.6)	37.9 (37.2–38.7)	0.940§
Respiratory rate (per minute)	21 (20–26)	23 (20–28)	<0.001§	22 (20–28)	22 (20–26)	0.240§
Oxygen saturation	0.96 (0.94–0.97)	0.94 (0.91–0.96)	<0.001§	0.95 (0.92–0.97)	0.95 (0.93–0.97)	0.570§
Hydroxychloroquine therapy	37 (4.8%)	696 (96.5%)	<0.001*	24 (6.2%)	372 (96.1%)	<0.001*
Azithromycin therapy	354 (45.85%)	716 (99.3%)	<0.001	184 (47.6%)	386 (99.7%)	<0.001*
Lopinavir/ritonavir therapy	68 (8.8%)	558 (77.4%)	<0.001	34 (8.8%)	302 (78%)	<0.001
Tocilizumab therapy	50 (6.5%)	99 (13.7%)	<0.001*	31 (8%)	27 (7%)	0.590*
Systemic corticosteroids	488 (63.2%)	283 (39.3%)	<0.001*	169 (43.7%)	176 (45.5%)	0.610*
Renal replacement therapy	26 (3.4%)	43 (6%)	0.017*	13 (3.4%)	21 (5.4%)	0.160*
Lymphocyte count (x10^9/L)	1.2 (0.8–1.6)	1.2 (0.9–1.6)	0.023§	1.2 (0.8–1.6)	1.3 (1–1.7)	0.200§
Aspartate transaminase (IU/L)	36 (25–56)	39 (28–58)	0.009§	37 (26–58)	37 (27–53)	0.81§
D–dimer (mg/L)	0.49 (0.34–0.83)	0.54 (0.36–1)	0.002§	0.52 (0.35–0.89)	0.53 (0.35–0.94)	0.330§
Bilateral pneumonia	603 (78.1%)	655 (90.9%)	<0.001*	333 (86.1%)	330 (85.3%)	0.760*
Baseline ordinal scale category			0.910*			0.130*
Category 4 (no supplemental oxygen)	376 (48.7%)	345 (47.9%)		201 (51.9%)	215 (55.6%)	
Category 5 (supplemental oxygen)	336 (43.5%)	317 (44%)		153 (39.5%)	153 (39.5%)	
Category 6 (HFNO or NIV)	34 (4.4%)	30 (4.2%)		18 (4.7%)	7 (1.8%)	
Category 7 (IMV or ECMO)	26 (3.4%)	29 (4%)		15 (3.9%)	12 (3.1%)	

Data are shown as number (%) or median (interquartile range). *Pearson's chi-squared test, †Fisher's exact test, §Wilcoxon rank-sum test. ECMO, extracorporeal membrane oxygenation; HFNO, high-flow nasal oxygen; IMV, invasive mechanical ventilation; NIV, non-invasive ventilation; WHO, World Health Organization

Table 2. Clinical outcomes before and after propensity-score matching

	Unmatched cohort (n = 1,493)			Propensity-score matched cohort (n = 774)		
	Favipiravir group (n = 772)	Non-favipiravir group (n = 721)	P value	Favipiravir group (n = 387)	Non-favipiravir group (n = 387)	P value
Clinical improvement within 28 days	723 (93.7%)	655 (90.9%)	0.042	361 (93.3%)	359 (92.8%)	0.780
Days to clinical improvement	8.50 (6–11.3)	8 (5–12)	0.130§	8.5 (6–11)	8 (5–12)	0.072§
All-cause mortality at 28 days	20 (2.6%)	24 (3.3%)	0.400*	8 (2.1%)	12 (3.1%)	0.360*
Ordinal scale category ≤3 on day 28	718 (93%)	635 (88.1%)	0.001*	360 (93%)	352 (91%)	0.290*
Hospital length of stay	9 (6–13)	10 (5–16)	0.420§	9 (6–12)	9 (5–14.5)	0.440§
Viral clearance	606 (78.5%)	457 (63.4%)	<0.001†	309 (79.8%)	248 (64.1%)	<0.001†
Status on day 28			0.014*			0.570*
Died	20 (2.6%)	24 (3.3%)		8 (2.1%)	12 (3.1%)	
Hospital floor	19 (2.5%)	31 (4.3%)		12 (3.1%)	11 (2.8%)	
Intensive care unit	20 (2.6%)	35 (4.9%)		9 (2.3%)	14 (3.6%)	
Discharged	713 (92.4%)	631 (87.5%)		358 (92.5%)	350 (90.4%)	

Data are shown as number (%) or median (interquartile range). *Pearson's chi-squared test, †Fisher's exact test, §Wilcoxon rank-sum test ared test, †Fisher's exact test

Table 3. Cox proportional hazards for clinical improvement within 28 days

	Univariate analysis			Multivariate analysis		
Covariate	Hazard Ratio	95% confidence interval	P value	Hazard Ratio	95% confidence interval	P value
Favipiravir group	1.070	0.962 – 1.190	0.210	0.978	0.862 – 1.109	0.726
Age	0.978	0.974 – 0.982	<0.001	0.983	0.977 – 0.988	<0.001
Male sex	0.916	0.799 – 1.051	0.210			
smoking	0.836	0.685 – 1.020	0.077			
Diabetes mellitus	0.657	0.588 – 0.734	<0.001	0.917	0.806 – 1.042	0.182
Hypertension	0.636	0.568 – 0.713	<0.001	0.955	0.830 – 1.099	0.521
Ischemic heart disease	0.709	0.540 – 0.931	0.013	0.914	0.679 – 1.229	0.551
Chronic lung disease	0.707	0.556 – 0.898	0.004	1.056	0.824 – 1.352	0.668
Chronic liver disease	0.317	0.151 – 0.667	0.002	0.607	0.287 – 1.284	0.192
Chronic kidney disease	0.350	0.266 – 0.461	<0.001	0.603	0.450 – 0.810	0.001
Cancer	0.555	0.328 – 0.940	0.029	0.639	0.365 – 1.118	0.116
Body mass index	0.999	0.988 – 1.011	0.929			
Baseline supplemental oxygen	0.529	0.474 – 0.591	<0.001	0.804	0.703 – 0.921	0.002
Baseline non-invasive ventilation	0.327	0.244 – 0.439	<0.001	0.702	0.507 – 0.971	0.032
Baseline invasive ventilation	0.207	0.140 – 0.304	<0.001	0.452	0.300 – 0.681	<0.001
Baseline systolic blood pressure	1.002	0.999 – 1.005	0.249			
Baseline lymphocyte count	1.003	0.980 – 1.027	0.778			
Tocilizumab therapy	0.398	0.327 – 0.486	<0.001	0.717	0.576 – 0.891	0.003
Systemic corticosteroids	0.467	0.419 – 0.520	<0.001	0.490	0.419 – 0.573	<0.001

Conclusion. Favipiravir therapy for COVID-19 pneumonia is well tolerated but is not associated with an increased likelihood of clinical improvement or reduced all-cause mortality by 28 days.

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509. Clinical Characteristics and Outcomes in Patients Infected with SARS-CoV-2 Treated with Remdesivir, Tocilizumab, and/or Dexamethasone at a Mid-Atlantic Hospital Consortium

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Session: P-24. COVID-19 Treatment

Background. Treatment strategies for COVID-19 have evolved based on clinical trials. We performed a retrospective analysis to determine treatment outcomes for Remdesivir (RDV), Tocilizumab (TOCI), and/or Dexamethasone (DEX) in a representative population from the Mid-Atlantic region.

Methods. A retrospective chart review was performed for patients admitted to MedStar hospitals within the D.C./Baltimore corridor from 03/01/2020 to 12/31/2020, and diagnosed with COVID-19 using a NP SARS-CoV-2 RT PCR assay. The MedStar Pharmacy Database was utilized to stratify based on any combination of RDV, TOCI, DEX treatment. Our primary endpoints included O_2 delivery device, length of stay (LOS), and mortality.

Results. A total of 2488 patients were included. Overall, the average age of patients was 62yrs, 53% male, and the majority of patients were of Black (54%) or White (27%) race. The average length of stay was 11 days (SD = 12) with a mortality of 14%. Using univariate analyses, all combinations of RDV, TOCI, and DEX treatment regimens were evaluated. Patients who received DEX required the most ventilatory support on Day 1 (5%, p< 0.001) compared to all other groups. These same patients, however, did not go on to have higher ventilatory needs (17%, p< 0.001) compared to the group which ultimately required the most ventilatory support, TOCI plus DEX (94%, p< 0.001) at Day 28 of treatment. TOCI use alone was associated with a 4% to 63% (p< 0.001) increase in need for ventilatory support over the course of 28 days (Figure 1). The shortest LOS was seen in those treated with DEX alone (9.5 days, p< 0.001). Longer LOS outcomes were associated with all treatment groups which included TOCI use (19 to 22 days, p< 0.001, Figure 2). Mortality was similarly higher among all treatment groups which contained TOCI (30% to 62.5%, p< 0.001, Figure 3) when compared to those with RDV and/or DEX use alone (10% to 14%, p< 0.001).