died, while 6 (26%) are currently hospitalized. All deaths reported were due to septic shock from secondary infections. 15 (65%) showed improvement in oxygen requirements 7 days post CCP transfusion. Measured inflammatory markers, c-reactive protein, lactate dehydrogenase, ferritin and d-dimer improved 7 days post transfusion in 13 (57%) patients. No adverse events due to the transfusion were reported. 10 (43.4%) patients had a negative SARS-CoV-2 RT-PCR at a median of 14.5 (range, 4–31) days after receiving convalescent plasma.

Conclusion: Administration of convalescent plasma was found to be safe, with favorable outcomes in this small cohort of relatively high acuity patients. Larger studies including control arms are needed to establish the efficacy of convalescent plasma on clinical and virologic outcomes for patients with COVID-19.

Table

Table 1. COVID-19 Positive Patient characteristics, Symptoms, Treatment and Outcomes

Variable	All Patients n = 23 (%)*
Demographics	
Age, median (range)	59 (33-80)
Gender, male	12 (52%)
Ethnicity, Hispanic	14 (61%)
ABO Blood type	
O positive	10 (43.4%)
A positive	10 (43.4%)
B positive	3 (13%)
Comorbidities	
Hypertension	13 (57%)
Diabetes Mellitus	10 (43.4%)
Overweight (BMI >25)	18 (78.2%)
Exposure	
Community	17 (74%)
Cruise ship	2 (8.6%)
Nursing home	3 (13%)
Healthcare worker	1 (4.3%)
Symptoms at admission	
Fever	19 (83%)
Cough	19 (83%)
Dyspnea	20 (87%)
Fatigue	5 (22%)
Days *of symptoms on presentation, median (range)*	6 (1-15)
Radiographic findings	
Abnormal chest x-ray on admission	23 (100%)
WHO ordinal clinical severity score	
Admission	
4: Oxygen by mask or nasal prongs	7 (30.4%)
5: Non-invasive ventilation or high flow mask	6 (26%)
6: Intubation and mechanical ventilation	3 (13%)

Disclosures: **All Authors**: No reported disclosures

550. Clinical impact of Tocilizumab therapy in SARS-CoV-2 respiratory infections in ICU and non-ICU patients

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Session: P-21. COVID-19 Treatment

Background: Tocilizumab (TCZ) is a monoclonal antibody against the interleukin-6 receptor which is potentially beneficial in COVID-19 induced cytokine release syndrome (CRS). However, there are limited studies showing anti-inflammatory effect and clinical benefit of TCZ in COVID-19 patients. This retrospective study examines treatment responses of criteria based TCZ therapy for SARS-CoV-2 respiratory infection for ICU vs. non-ICU patients.

Methods: We established institutional criteria to identify patients at risk of CRS from COVID-19. Patients were included if they received at least 1 dose of TCZ and were admitted for at least 72 hours. Primary endpoint was to assess clinical improvement (CI) at the end of admission. CI was defined by extubation, downgrade from ICU, discharged or improvement in Clinical Ordinal Scale by 2. Secondary endpoint of the study was to assess inpatient mortality (IM) and risk factors associated with IM. Subgroup analysis included impact of early (< 96 hours) vs late (≥ 96 hours) TCZ therapy on IM.

Results: Between March 25 to May 6, 2020, 170 patients met criteria and received TCZ. There were 83 non-ICU patients and 87 in the ICU. Forty five patients needed invasive mechanical ventilation (IMV). ICU patients tended to be obese, receive 2 doses of TCZ and have longer length of stay. Overall CI was seen in 71% of patients. CI was higher in non-ICU vs ICU patients (85.5% vs 57.5%, P=0.002). Overall IM was 18.8%; however, IM was lower in non-ICU vs ICU patients (8.4% vs 28.7%, P=0.0014). IM was higher in patients on IMV vs. non-IMV (30% vs 15.4%, P=0.03). Risk factors of ICU admission, BMI ≥ 30 kg/m2 and AKI were associated with higher risk of IM. Many IM patients were made comfort care. No differences were observed in early vs late TCZ therapy on inpatient mortality, but there was a trend toward lower mortality with early TCZ.

COS Review of Tocilizumab Patients

	Tocilizumab Non-ICU N=83	Tocilizumab ICU N=87
COS, day 7		
COS – 1, %	4.8%	3.8%
COS – 2, %	2.4%	2.5%
COS – 3, %	14.3%	5%
COS – 4, %	33.7%	12.5%
COS – 5, %	0%	20%
COS – 6, %	0%	45.5%
COS – 7, %	4.8%	11.2%
COS @ End of Stay		
COS – 1, %	51.8%	26.7%
COS – 2, %	26.5%	19.8%
COS – 3, %	2.4%	3.5%
COS – 4, %	8.4%	7.0%
COS – 5, %	0%	2.3%
COS – 6, %	0%	10.5%
COS – 7, %	8.4%	29.9%

COS: Clinical Ordinal Scale
1 = discharge w/ resumption normal activity
2 = discharge w/out resumption normal activity
3 = non-ICU not requiring O2
4 = non-ICU requiring O2
5 = ICU not requiring IMV
6 = ICU requiring IMV
7 = Death

Conclusion: TCZ is an effective treatment option in patients with SARS-CoV-2 patients at risk of CRS. Patients receiving TCZ in non-ICU setting had a better response to treatment compared to ICU patients. Obesity and AKI were associated with higher risk of mortality, but there was no statistical difference in early vs late therapy. Further studies with control group and larger sample size are warranted.

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551. Convalescent plasma early in disease course improves survival in COVID-19

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Session: P-21. COVID-19 Treatment

Background: Convalescent plasma (CP) has been described as a potential therapy for coronavirus disease 2019 (COVID-19). Given paucity of data, we sought to describe characteristics of CP recipients in survivors and non-survivors.

Methods: We conducted retrospective review of electronic medical records which included any patient with a positive SARS-CoV-2 PCR test who received CP at an 890-bed quaternary care hospital in Southeast Michigan between March-May 2020. Data collected included: demographics, co-morbidities, mSOFA score on admission, laboratory values, and treatment. Outcomes assessed included inflammatory markers and clinical status based on an 8-point ordinal scale[a]. These values were recorded on admission, the date of CP (day 1), day 3, 7, and day 30 post-CP. Patient outcomes were stratified by ordinal scale score and compared using Mann-Whitney U tests to examine differences in clinical characteristics: scale of 1–4 ("meaningful survivor"), 5–7 ("survivor"), and 8 ("non-survivor").

Results: Results of our study are summarized in Table 1 and 2. Non-survivors were older than survivors (62 vs 71 years; p=0.026). There was no statistically significant difference between patient gender, race, number of days from positive PCR test to CP, treatments, and co-morbidities. There was a trend toward higher mSOFA score on admission in non-survivors (p=0.056). A lower ordinal scale score on the date of receiving CP was significantly associated with meaningful survivorship (6 vs 7, p=0.005).

Comparisons of Characteristics Based on Ordinal Scale at Day 30

Table 1. Comparisons of Characteristics Based on Ordinal Scale at Day 30

Characteristic	Ordinal Scale 1-4 (n = 6)	Ordinal Scale 5-7 (n = 9)	Ordinal Scale 8 (n = 13)	*P* value
Age, years (median)	63.5	62	71	0.022
Male, no. (%)	3 (50%)	8 (89%)	9 (69%)	0.273
Race, no. (%)				0.81
- Black	2 (33%)	6 (66.7%)	7 (54%)	
- White	2 (33%)	1 (11%)	3 (23%)	
- Hispanic	0	0	1 (7.5%)	
- Other	2 (33%)	2 (22%)	2 (15.4)	
BMI, kg/m^2 (median)	28.75	31.9	26.4	0.157
Co-morbidities, no. (%)				
- Lung disease	1 (16.7%)	5 (55.6%)	7 (54%)	0.302
- Immunodeficiency	1 (16.7%)	1 (11%)	1 (7.7%)	1
- Cardiovascular disease	0	3 (33%)	3 (23%)	0.346
- Chronic kidney disease	1 (16.7)	7 (77.8%)	8 (61.5%)	0.087
- COPD	0	1(11.1%)	3 (23%)	0.52
- Hypertension	3 (50%)	7 (77.8%)	8 (61.5)	0.607
- Asthma	0	2 (22%)	0	0.134
- Cancer	0	0	2 (15.4%)	0.69
- Diabetes	2 (33.3%)	6 (66.7%)	6 (46.2%)	0.501
Number of days after positive PCR test to date of receiving CP (median, IQR)	10 (7-13)	28 (8-31)	15 (8-16)	0.369
Treatments, no. (%)				
- Hydroxychloroquine	5 (83%)	7 (78%)	9 (69%)	1
- Azithromycin	0	2 (22%)	1 (7.7%)	0.571
- Doxycycline	1 (16.7%)	6 (67%)	8 (62%)	0.136
- Methylprednisolone	3 (50%)	7 (77.8%)	10 (77%)	0.484
- Prednisone	4 (66.7%)	5 (55.6%)	7 (54%)	1
- Remdesivir	2 (33%)	1 (11%)	3 (23%)	0.619
mSOFA on admission (median)	2.5	5	6	0.056

CP Convalescent Plasma; IQR interquartile range; BMI Body Mass Index; COPD Chronic Obstructive Pulmonary Disease; mSOFA Modified Sequential Organ Failure Assessment

Comparisons of Outcomes Based on Ordinal Scale at Day 30

Table 2. Comparisons of Outcomes Based on Ordinal Scale at Day 30

Characteristic	Ordinal Scale 1-4 (n = 6)	Ordinal Scale 5-7 (n = 9)	Ordinal Scale 8 (n = 13)	*P* value
Clinical status (median)				
- On admission	5	5	6	0.062
- On day 1 of CP	6	7	7	0.005
- On day 3 of CP	5.5	7	7	<.001
- On day 7 of CP	2.5	7	8	<.001
- On day 30 of CP	1.5	7	8	<.001
CRP, mg/dL (median)				
- On admission	11.7	11.6	13.3	0.505
- On day 1 of CP	2.75	14.4	8.4	0.039
- On day 3 of CP	3.5	10.1	13.65	0.312
- On day 7 of CP[b]	6	14.4	15.1	0.314
Absolute lymphocyte count, K/uL (median)				
- On admission	0.7	0.7	0.6	0.862
- On day 1 of CP	0.8	0.7	0.5	0.292
- On day 3 of CP	1.25	1	0.43	0.004
- On day 7 of CP[b]	1.20	0.9	0.7	0.770
D-Dimer, ug/mL (median)				
- On admission	0.94	1.91	2.3	0.225
- On day 1 of CP	1.89	6.94	5.36	0.071
- On day 3 of CP	1.86	9.3	20	0.081
- On day 7 of CP[b]	3.21	3.83	6.96	0.417
Ferritin, ng/mL (median)				
- On admission	574	499	553	0.712
- On day 1 of CP	671	770	850	0.492
- On day 3 of CP	691	600	615	0.986
- On day 7 of CP[b]	-	1233	562	0.157

[[a]Clinical status using ordinal scale: 8) Death, 7) Hospitalized, on invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO), 6) Hospitalized, on non-invasive ventilation or high flow oxygen devices, 5) Hospitalized, requiring supplemental oxygen, 4) Hospitalized, not requiring supplemental oxygen – requiring ongoing medical care, 3) Hospitalized, not requiring supplemental oxygen – no longer requires ongoing medical care, 2) Not hospitalized, limitation on activities and/or requiring home oxygen, 1) Not hospitalized, no limitation on activities.]
[[b]majority of lab values not available]

Conclusion: Patients who have a lower ordinal scale score on the date of CP administration are most likely to have meaningful survivorship at day 30. Future studies should evaluate optimal timing and outcomes for CP therapy in COVID-19.

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552. Could Anticoagulant Use Prior to Infection with COVID-19 Decrease Mortality?

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Session: P-21. COVID-19 Treatment

Background: The novel coronavirus (COVID-19) has resulted in substantial morbidity and mortality worldwide. Infection with COVID-19 has been associated with coagulopathy and inflammation. This prothrombotic state has been identified in the literature as an indicator of poor prognosis and those with COVID-19 who receive anticoagulation therapy may have better outcomes. Due to this prothrombotic state, patients who are currently receiving anticoagulation therapy for other indications prior to infection with COVID-19 may have better outcomes.

Methods: This was a retrospective case control study conducted at an inner city hospital. Patients were eligible if they were hospitalized between March 15, 2020 and May 15, 2020 and had confirmed infection due to COVID-19. Patients were matched by age, sex, body mass index (BMI), diabetes mellitus (DM), hypertension (HTN) and estimated glomerular filtration rate (eGFR) by chronic kidney disease (CKD) state. This study evaluated morality in patients who were receiving long term anticoagulation therapy prior to infection with COVID-19 compared to those who were not.

Results: Of the 436 patients hospitalized with confirmed infection due to COVID-19, 400 were eligible for analysis. Twenty-two were on anticoagulation therapy prior to admission. Among those patients, 68% were male and 32% were female. The majority of the patients were greater than 60 years of age (82%). Comorbidities were present in 21 patients and were as follows: HTN (95%), CKD (67%), DM (57%), obesity (36%). Of the 22 patients, five expired due to COVID-19 infection compared to 52 patients from the 149-patient matched cohort [z-score 1.13, p = 0.26; odds ratio (OR) 1.82; 95% confidence interval [CI], 0.69–4.71].

Conclusion: Prior long-term anticoagulation use does not appear to have a protective effect in patients with COVID-19 infection. Studies with larger sample size will be needed to answer this important question.

Disclosures: **Jihad Slim, MD**, **Abbvie** (Speaker's Bureau)**Gilead** (Speaker's Bureau)**Jansen** (Speaker's Bureau)**Merck** (Speaker's Bureau)**ViiV** (Speaker's Bureau)

553. Critically Ill patients Receiving Tocilizumab Compared With Those Not Receiving Tocilizumab for Treatment of COVID-19

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Session: P-21. COVID-19 Treatment

Background: Background::

Immune modulation in patients with clinical features suggestive of a cytokine release syndrome (CRS) has become a pharmacologic target for potential treatment of COVID-19 and prevention of ARDS. Tocilizumab is an IL-6 receptor blocker FDA-approved for chimeric antigen receptor (CAR) T cell-induced severe or life-threatening CRS. The objective of this study was to describe clinical outcomes associated with tocilizumab compared with those not receiving tocilizumab in critically ill patients with severe COVID-19.

Methods: Methods:

Retrospective case series of 49 adult patients admitted to an intensive care unit with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Patients receiving tocilizumab were compared with those not receiving tocilizumab. The primary outcome was clinical improvement (decrease in supplemental oxygen requirement, discharge from ICU, or live discharge from hospital). Secondary endpoints included mortality and frequency of extubation. All comparative endpoints were assessed at 2 weeks after ICU admission.

Results: Results:

49 patients were identified with SARS-CoV-2 who were admitted to an ICU, 16 received tocilizumab. Baseline characteristics were similar; most were African American males with comorbidities such as obesity, cardiovascular disease, and diabetes. The time from symptom onset to positive test and subsequent intubation were similar (4 and 7 days, respectively). 75% received one dose (all received 8 mg/kg). The median time from symptom onset to tocilizumab administration was 11 days.

In patients receiving tocilizumab compared with those not receiving tocilizumab, there were similar rates of clinical improvement (44% versus 61%, p=0.27), extubation (31% versus 45%, p=0.60), and mortality (18% versus 19%, p >0.99, respectively). 81% of the tocilizumab group had resolution of fever and 75% had improvement in C-reactive protein levels.

Conclusion: Conclusion:

In this study of patients with progressed disease, outcomes were similar regardless of receipt of tocilizumab. Randomized controlled trials are needed to assess the impact of earlier administration and identify clinical characteristics to assist with selection of appropriate patients who may benefit from tocilizumab.

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554. Early Clinical Outcomes with Tocilizumab for Covid-19: A Two-Center Retrospective Study

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Session: P-21. COVID-19 Treatment

Background: Severe Covid-19 is associated with elevated inflammatory markers, consistent with cytokine release syndrome (CRS). Tocilizumab is an IL-6 inhibitor,