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 | 0.032 |
| Male, no. (%) | 3 (50%) | 8 (89%) | 9 (69%) | 0.273 |
| Race, no. (%) | | | | |
| - Black | 2 (34%) | 6 (66.7%) | 7 (54%) | 0.81 |
| - White | 2 (33%) | 1 (11%) | 3 (23%) | |
| - Hispanic | 0 | 1 (17.5%) | | |
| - Other | 2 (33%) | 2 (22.2%) | 15 (11.5%) | |
| BMI, kg/m² (median) | 28.7% | 31.9% | 26.4% | 0.157 |

Comparison of Characteristics 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 | 0 | 0.005 |
| - On day 5 of CP | 5.5 | 7 | 7 | <0.01 |
| - On day 7 of CP | 2.5 | 7 | 8 | <0.01 |
| - On day 30 of CP | 1.5 | 7 | 8 | <0.01 |
| CRP, mg/dl (median) | 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 | 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 | 1.25 | 0.9 | 0.72 | 0.770 |
| D-Dimer, ug/mL (median) | 0.84 | 1.91 | 2.3 | 0.225 |
| - On admission | 1.89 | 6.94 | 5.36 | 0.071 |
| - On day 1 of CP | 1.86 | 9.3 | 20 | 0.081 |
| - On day 3 of CP | 3.21 | 3.83 | 6.96 | 0.417 |
| Ferritin, ng/mL (median) | 574 | 499 | 553 | 0.712 |
| - On admission | 671 | 770 | 850 | 0.492 |
| - On day 1 of CP | 691 | 606 | 615 | 0.966 |
| - On day 3 of CP | 602 | 623 | 562 | 0.157 |

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) stage. This study evaluated mortality 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 1:49-patient matched cohort (z-score: 1.13, p = 0.26; odds ratio (OR) 1.95, 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.

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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: 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: This was a 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 in critically ill patients with severe COVID-19.

Results: Of the 49 patients 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: 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,
555. Effectiveness of a Treatment Team on Adherence to Health System Guidelines for Hydroxychloroquine Use During Two Phases of the COVID-19 Epidemic

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Session: P-21. COVID-19 Treatment

Background: Our hospital system created system guidelines to standardize care across 24 hospitals for COVID-19 treatment during the pandemic. Guidelines changed over time. Hydroxychloroquine (HCQ) was unrestricted during phase 1, then restricted by pharmacy outside of a randomized clinical trial (RCT) during phase 2 (excluding those ineligible for RCTs).

Methods: This was a prospective study to assess system-wide adherence to COVID-19 treatment guidelines, and to evaluate patient outcomes.

Results: Of 261 patients, median age was 67 years (IQR 56–76); 49% (129/261) were male, and 45% (118/261) required ICU care. Overall, 47% (122/261) were in phase 1; HCQ was offered to 57% (69/122) during this phase. The rate of HCQ prescription in phase 2 decreased significantly to 10% (14/139, p < 0.001) compared to phase 1. Adherence to COVID-19 treatment protocol was 97% (139/140) during phase 2. Mortality was similar in both phases (22% vs 28%, p = 0.32), as was median length of stay (8 vs 7 days, p = 0.53). Overall 66 patients (25%) died in the hospital; neither non-adherence (p = 1) to system guidelines nor receipt of HCQ (p = 0.17) were risk factors for death.

Conclusion: During the COVID-19 pandemic, our health system guidelines and pharmacy restrictions were successful in delivering consistent care across hospitals. Restriction of HCQ for COVID-19 treatment to RCTs reduced its use and pharmacy restrictions were successful in delivering consistent care across hospitals.

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556. Evaluation of Hydroxychloroquine-based Combination Therapies for the Treatment of COVID-19

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Session: P-21. COVID-19 Treatment

Background: During the early COVID-19 pandemic a large number of investigational agents were utilized due to lack of therapeutic options. We evaluate the utility of commonly-used investigational agents combined with hydroxychloroquine (HCQ).

Methods: This multicenter observational cohort study included patients admitted with COVID-19 between March - May 2020 in Detroit, Michigan who received at least 2 doses of HCQ. Our primary outcome was the change in Sequential Organ Failure Assessment (SOFA) score from presentation to day 5 of HCQ therapy with a secondary outcome of in-hospital mortality. Data collected included demographics, Charlson Comorbidity index (CCI), daily SOFA score, laboratory data and COVID-directed therapies. Multiple linear regressions were performed to control for potential confounders between different therapies and change in SOFA score.

Results: Three hundred thirty-five patients receiving HCQ were included. Patients were 62 ± 14.8 years of age, male (54%) and African-American (82%) with a mean CCI of 1.7 ± 1.9. In our cohort, 32% were admitted to the intensive care unit and 35% expired. Therapies received by more than 20% of patients in addition to HCQ included azithromycin (80%), zinc (76%) and vitamin D (29%). In our unadjusted analysis, a significant improvement in SOFA score was observed with zinc (0.76) while no significant change was observed with azithromycin (-0.06) or vitamin D (0.05). However, there was no significant change in SOFA score after adjusting for confounders for azithromycin, zinc and vitamin D. No difference in mortality was observed between the groups.

Conclusion: Overall, no benefit in end-organ damage or mortality was observed with the addition of azithromycin, zinc or vitamin D to HCQ. Further studies are needed to confirm this observation.

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557. Impact of Concomitant Hydroxychloroquine Use on Safety and Efficacy of Remdesivir in Moderate COVID-19 Patients

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Session: P-21. COVID-19 Treatment

Background: Remdesivir (RDV) has been shown to shorten recovery time and was well tolerated in patients with severe COVID-19. Hydroxychloroquine (HQN) is an experimental treatment for COVID-19. Effects of coadministration of HQN with RDV have not been studied and are relevant given the long half-life (~22 days) of HQN. We report the impact of concomitant HQN and RDV use on clinical outcomes and safety in patients with moderate COVID-19.

Methods: We enrolled hospitalized patients with confirmed SARS-CoV-2 infection, oxygen saturation >94% on room air, and radiological evidence of pneumonia. Patients were randomized 1:1 to receive 5d or 10d of intravenous RDV once daily plus standard of care (SoC), or SoC only. We compared patients on concomitant HQN (HQN+RDV) vs HQN alone (HQN–RDV). Clinical recovery was evaluated using Cox proportional hazards. Covariate adjustment included age, sex, race, region, symptom duration, oxygen support status and obesity. Recovery and adverse events (AEs) were assessed through death, discharge, or d14.

Results: Of 584 patients, 199 (34%) received HQN (5d RDV: n=57 [30%]; 10d RDV, n=49 [25%]; SoC: n=93 [47%]). Through median follow-up of 13d (range 1-41d), HQN+RDV compared to HQN–RDV showed a trend of reduced recovery rate (HR: 0.69 [0.45,1.04], p = 0.080); such an effect was not observed in 10d RDV or SoC (Table 1). More HQN+RDV than HQN–RDV patients had AEs in RDV (5/10d) or SoC arms evaluated separately, and all arms combined. This difference was significant for AEs and SEs for all arms combined after covariate adjustment (Table 2).

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