# PATIENT OUTCOMES OF A PRAGMATIC AND ADAPTIVE COVID-19 TREATMENT CLINICAL TRIAL

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## INTRODUCTION

- Since the COVID-19 pandemic began, it has been vital to collect patient characteristics from those affected by the virus.
- A pragmatic, non-randomized, interventional clinical study began in Nova Scotia in March 2020 for patients with moderate to severe COVID-19 symptoms.
- Direct acting anti-viral or immune modulation medications were included as investigational medications adjunct to the clinical standard of care.
- Types of medication used changed based on emerging data and medication availability.

## AIM

**PRIMARY OBJECTIVE:**

Evaluate the clinical effectiveness and safety of investigational therapeutics in patients hospitalized with COVID-19.

**SECONDARY OBJECTIVES:**

1. Evaluate clinical effectiveness of investigational therapeutics relative to clinical standard of care treatment as assessed by clinical severity. (assessing ordinal scale, frailty scale, time to discharge, fever normalization, etc)
2. Evaluate the safety of different investigational medications as compared to clinical standard of care treatment (assessing SAEs, AEs and bloodwork)
3. Immune Sub study: Evaluate changes in global and SARS-CoV-2 specific immunity in investigational medication arms as compared to clinical standard of care treatment.

**Exploratory Objective**

Evaluate the effectiveness of investigational medications as compared to clinical standard of care treatment (quantitative SARS-CoV-2 viral load in blood).

## METHODS

- **Eligibility:** all hospitalized individuals across Nova Scotia diagnosed with moderate to severe COVID-19 disease that meet eligibility criteria were offered participation
- **Laboratory confirmation:** individuals had a confirmed COVID-19 positive laboratory result by PCR test
- **Process:** physicians screened patients for study eligibility upon hospital admission, gained their informed consent to participate in study, and then assigned participants to a study treatment arm.
- **Drug assignment**: based on sequential order (if drug was available and participant was eligible). If ineligible for study drug, participant was assigned to clinical standard of care.
    - Lopinavir/ritonavir (Kaletra)
    - Hydroxychloroquine (Plaquenil)
    - Baricitinib (Olumiant)
- **Types of Informed Consent**
    - Verbal
    - Electronic
    - Written
    - A substitute decision maker could provide informed consent for the participant if the individual did not have capacity

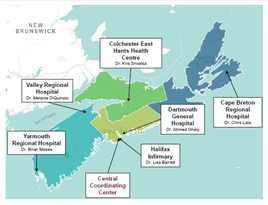


Figure 1. Participating hospital sites

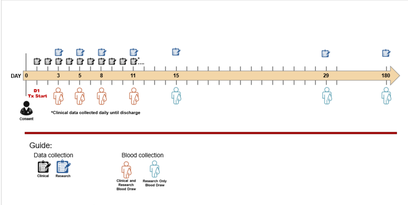


Figure 2. Study participant timeline

## RESULTS

Table 1. Patient Characteristics at Baseline

| Baseline Characteristics | Baricitinib (N=4) | Clinical Standard of Care (N=6) | Hydroxychloroquine (N=2) |
|---|---|---|---|
| Female sex, n | 1 | 3 | 1 |
| Male sex, n | 3 | 3 | 1 |
| Age (years), mean (IQR) | 55 (54-55) | 47 (39-51) | 82 (79-85) |
| Age (<50 years), n | 0 | 4 | 0 |
| Age (50-69 years), n | 4 | 2 | 0 |
| Age (≥70 years), n | 0 | 0 | 2 |
| ALT (U/L), mean (IQR) | 31 (15-46) | 82 (40-107) | 30 (24-35) |
| AST (U/L), mean (IQR) | 36 (25-51) | 103 (37-110) | 50 (47-54) |
| Creatinine Kinase (U/L), mean (IQR) | 109 (37-146) | 2020 (134-354) | 316 (312-319) |
| D-dimer(ng/mL), mean (IQR) | 383 (295-459) | 1116 (240-433) | 852 (823-880) |
| Ferritin (mcg/L), mean (IQR) | 1256.9 (49.7-1348.3) | 2330.9 (816.9-3433.5) | 536.7 (400.6-672.7) |
| Neutrophils (x10^9/L), mean (IQR) | 6.24 (5.49-7.48) | 6.24 (5.49-7.48) | 7.26 (6.00-8.51) |
| Lymphocytes (x10^9/L), mean (IQR) | 0.77 (0.72-0.84) | 1.30 (0.87-1.65) | 0.92 (0.90-0.93) |

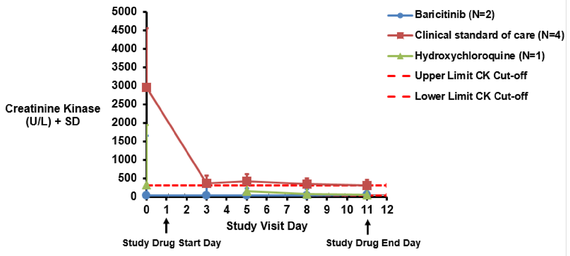


Figure 3: Average creatinine kinase (CK) results for male participants fluctuated over investigational study medication administration days (baseline-day 11) for all participants. The participant on hydroxychloroquine did not have a CK result on day 3 of study day medication administration. The CK reference range is for males is from 30-300 U/L.

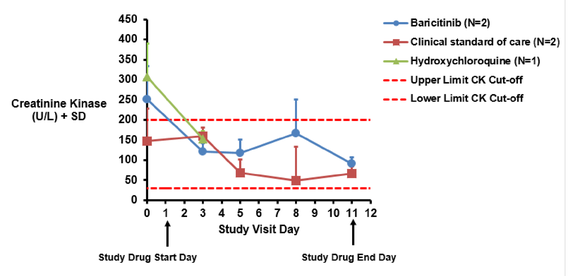


Figure 4: Average creatinine kinase (CK) results for female participants fluctuated over investigational study medication administration days (baseline-day 11) for all participants. The participant on hydroxychloroquine did not have a CK result on days 5, 8, or 11 of study day medication administration. The CK reference range for females is from 30-200 U/L.

Table 2. Patient Clinical Status at Baseline

| Baseline Characteristics | Baricitinib (N=4) | Clinical Standard of Care (N=6) | Hydroxychloroquine (N=2) |
|---|---|---|---|
| **Ordinal Scale Score** | | | |
| 1. Not hospitalized, no limitations on activities, n | | | |
| 2.Not hospitalized, limitation on activities, , n | | | |
| 3. Hospitalized, not requiring supplemental oxygen, n | | | |
| 4. Hospitalized, requiring supplemental oxygen, n | 3 | 4 | 1 |
| 5. Hospitalized, on non-invasive ventilation or high flow oxygen devices, n | 1 | | 1 |
| 6. Hospitalized, intubation or mechanical ventilation, n | | 1 | |
| 7. Hospitalized, ventilation and additional organ support - pressors, RRT, ECMO, n | | | |
| 8. Death, n | | | |
| **Clinical Frailty Status** | | | |
| 1=Very Fit, n | | 2 | |
| 2=Well, n | 1 | | |
| 3=Managing Well, n | | | |
| 4=Vulnerable, n | | 1 | |
| 5=Mildly Frail, n | 1 | 1 | 2 |
| 6=Moderately Frail | 1 | | |
| 7=Severely Frail, n | 1 | | |
| 8=Very Severely Frail, n | | | |
| 9=Terminally Ill, n | | | |

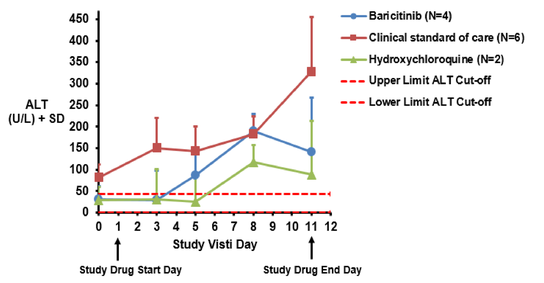


Figure 5: Average ALT results fluctuated over investigational study medication administration days (baseline-day 11) for all participants. The ALT reference range is from 0-44 U/L.

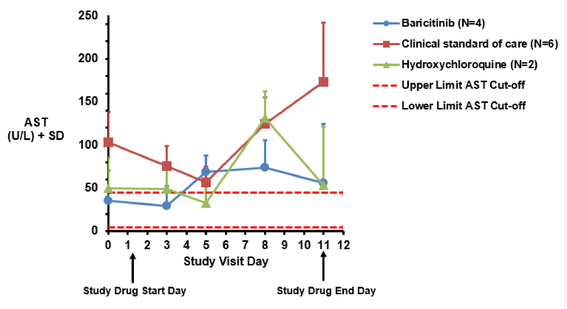


Figure 6: Average AST results fluctuated over investigational study medication administration days (baseline-day 11) for all participants. The AST reference range is from 5-45 U/L.

## CONCLUSION

- Various patient baseline characteristics have been collected including demographics, laboratory values, and clinical status.
- Laboratory results were observed outside reference ranges for ALT, AST, and creatinine kinase over study medication administration days regardless if the participant was on an investigational medication or the clinical standard of care.
- It is crucial to further investigate patient outcomes to provide the best possible care for hospitalized COVID-19 patients.

## ACKNOWLEDGEMENTS

Dr. Barrett Research Team Members

NSHA Microbiology Lab

## DISCLOSURES

None to date.

## Contact information

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