VA Cooperative Studies Program Epidemiology Analytics Resource (CSPEAR)

COVID-19 Convalescent Plasma Therapy: Characteristics of Treated and Untreated Veteran Inpatients

May 2021

Fact Sheet: Data on Veterans Using VA Health Care

CSPEAR provides timely epidemiologic information on VA health care users. This fact sheet presents summary data to inform a broad community of VA leaders, investigators, and clinicians as they consider how best to address the needs of Veterans.

Introduction

Convalescent plasma (CP) is a promising treatment for coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The plasma of recovered patients contains antiviral and anti-inflammatory components that may help others fight the infection.[1] The *Use of COVID-19 Convalescent Plasma Therapy in the Department of Veterans Affairs Health Care System* presents data on the characteristics of patients treated with COVID-19 CP within the Veterans Health Administration (VHA).[2] This fact sheet presents complementary data summarizing the characteristics of CP and non-CP patients.

Methods

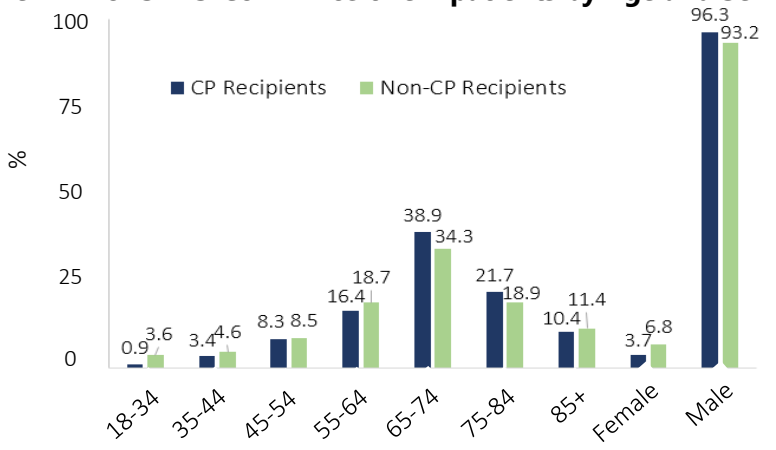
Population: SARS-CoV-2-positive Veterans hospitalized at a VA medical center providing CP between Apr 15 and Nov 17, 2020. **Data Sources:** Clinical data from the VA Corporate Data Warehouse; COVID-19 data from the VA COVID-19 Shared Data Resource;[3] CP recipients from Mayo Clinic Expanded Access Program (EAP)[4] and VA Pathology & Laboratory Medicine Service. **Analyses:** Patients are grouped into 5 time periods according to their index date, defined as the earliest of the date of first positive test or the closest inpatient admission in the preceding 30 days. Time periods were determined by key dates in the authorization of CP treatment, including the first CP transfusion conducted in VA (04/15/2020) and the Emergency Use Authorization (EUA) of CP (08/23/2020). The VA COVID-19 Severity Scale was used to determine severe illness.[5] Figures comparing CP and non-CP patients assess severity over the course of the hospital stay.

Notes: This work was conducted under the CSP #2030 study protocol (VA CIRB: E20-10). This material is the result of work supported with resources and the use of facilities at the VA Cooperative Studies Program Epidemiology Centers in Seattle, WA and Boston, MA. The contents do not represent the views of VA or the US Government.

Fast Facts

- The demographics of SARS-CoV-2-positive Veterans were similar across the CP and non-CP treatment groups.
- For each time period, a higher proportion of CP recipients compared with non-CP recipients presented with severe COVID-19 during their stay or were admitted to the intensive care unit (ICU).
- CP recipients had a higher median Charlson Comorbidity Index (CCI) score than non-CP patients (3.0 vs. 2.0, across all time points). The higher the CCI score, the higher the risk of death within 1 year of hospitalization.[6]
- Length of hospital stay was longer for CP patients compared with non-CP patients, regardless of severity of illness. Median length of hospital stay decreased over time for all treatment and severity groups.
- Use of remdesivir and corticosteroids generally increased over time in both CP and non-CP groups. CP patients were more likely than non-CP patients to receive these treatments, regardless of severity status.

Percent of SARS-CoV-2-Positive Inpatients by Age and Sex



Percent of SARS-CoV-2-Positive Inpatients with Index Date within Time Periods

Time Period (MM/DD) Year: 2020	Treated with CP	Untreated with CP
Early EAP (04/15-05/27)	173 (9.1%)	1,436 (13.8%)
Mid EAP (05/28-07/09)	394 (20.8%)	1,828 (17.6%)
Late EAP (07/10-08/22)	496 (26.2%)	2,323 (22.3%)
Early EUA (08/23-10/01)	314 (16.6%)	1,413 (13.6%)
Late EUA (10/02-11/17)	519 (27.4%)	3,407 (32.7%)
Total	1,896 (100.0%)	10,407 (100.0%)

Visit CSPEAR's website or contact CSPEAR@va.gov for more information.

Suggested citation: VA Cooperative Studies Program Epidemiology Analytics Resource. *COVID-19 Convalescent Plasma Therapy: Characteristics of Treated and Untreated Veteran Inpatients.* Cooperative Studies Program, Office of Research and Development, Department of Veterans Affairs. 2021.

U.S. Department of Veterans Affairs
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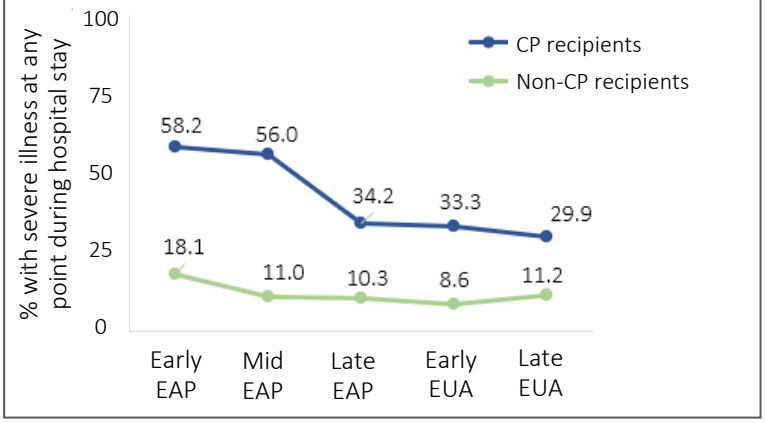
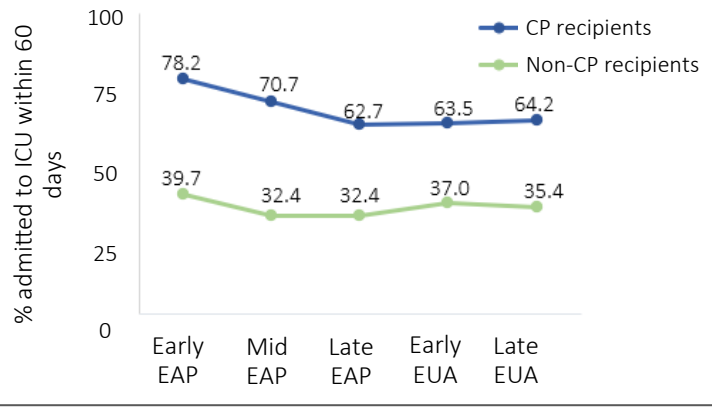
Cooperative Studies Program

Percent of SARS-CoV-2-Positive Inpatients with Severe COVID-19 At Any Point during Hospital Stay



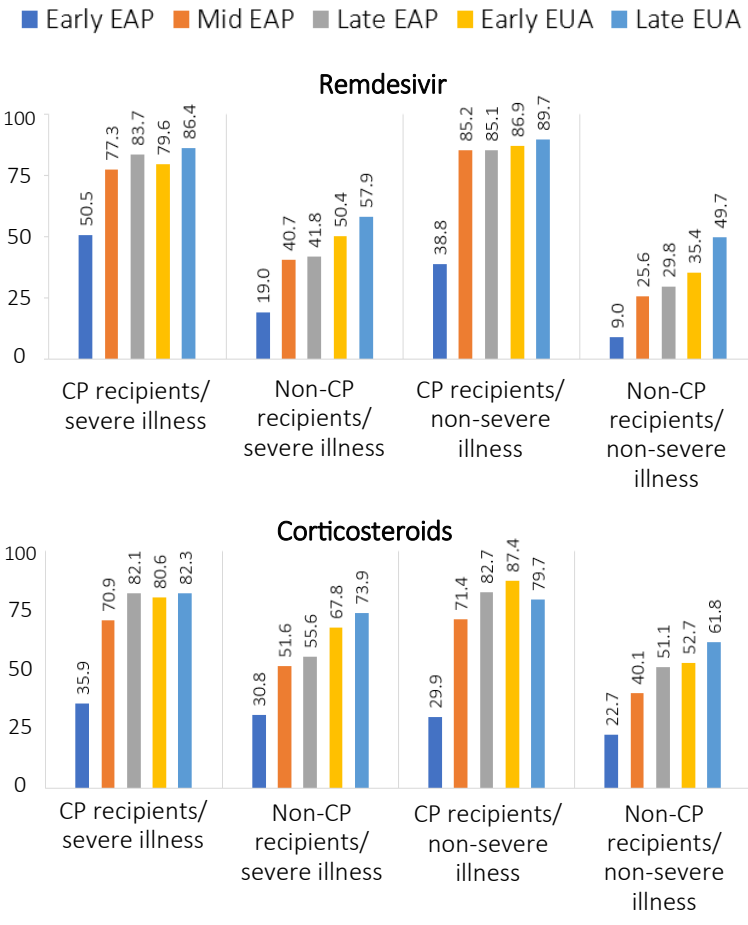
Percent of SARS-CoV-2-Positive Inpatients Admitted to Intensive Care Unit (ICU)



Median (Interquartile Range) Length of Hospital Stay in Days

Treatment and Severity	Early EAP	Mid EAP	Late EAP	Early EUA	Late EUA
CP recipients with severe illness	23.0 (15.0, 35.0)	17.5 (12.0, 27.8)	17.0 (12.0, 29.0)	16.5 (10.0, 23.2)	18.0 (11.0, 25.0)
Non-CP recipients with severe illness	14.0 (7.0, 22.0)	13.0 (7.0, 26.0)	13.0 (6.0, 21.2)	12.0 (6.0, 24.0)	12.0 (6.0, 22.0)
CP recipients with non-severe illness	10.0 (7.5, 15.5)	10.0 (6.0, 15.2)	9.0 (5.5, 14.0)	8.5 (5.2, 14.0)	7.0 (5.0, 11.0)
Non-CP recipients with non-severe illness	6.0 (3.0, 12.0)	5.0 (2.0, 10.0)	5.0 (2.0, 9.0)	5.0 (2.0, 8.0)	5.0 (2.0, 8.0)

Percent of SARS-CoV-2-Positive Inpatients Who Received Remdesivir and Corticosteroids



Percent of SARS-CoV-2-Positive Inpatients Who Received Medications during Hospital Stay

Medication	CP Recipients	Non-CP Recipients
ACE inhibitor	431 (22.7%)	2,552 (24.5%)
Anticoagulant	1,814 (95.7%)	9,416 (90.5%)
Angiotensin receptor blockers	305 (16.1%)	1,443 (13.9%)
Azithromycin	811 (42.8%)	2,672 (25.7%)
Corticosteroids	1,397 (73.7%)	5,056 (48.6%)
Hydroxychloroquine	36 (1.9%)	208 (2.0%)
Remdesivir	1,507 (79.5%)	3,507 (33.3%)
Tocilizumab	174 (9.2%)	173 (1.7%)

References and Resources

1. Rojas M, et al. Convalescent plasma in COVID-19: Possible mechanisms of action. *Autoimmun Rev*. 2020. 19(7): p. 102554.
2. CSPEAR. *Use of COVID-19 Convalescent Plasma Therapy in the Department of Veterans Affairs Health Care System.* Cooperative Studies Program, Office of Research and Development, Department of Veterans Affairs (VA). 2021.
3. VA COVID-19 Shared Data Resource https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/COVID-19:Shared_Data_Resource (link is internal to VA)
4. Mayo Clinic Expanded Access Program https://www.uscovidplasma.org/
5. VA COVID Severity Scale: https://phenomics.va.ornl.gov/web/cipher/phenotype-viewer?uqid=f957a03bc49d4572b07a2fa0623f8667&name=Veterans_Affairs_Severity_Index_for_COVID-19_-_MVP_
6. Charlson ME, et al. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation J Chronic Dis. 1987;40(5):373-83.

Visit https://www.research.va.gov/va-research-covid-19.cfm for information about VA research on COVID-19. CSPEAR thanks the VA Mayo Clinic EAP providers for their commitment to delivering care to the Veterans we serve.