Robert Wood Johnson University Hospital | RWJBarnabas HEALTH

RWJUH COVID-19 Convalescent Plasma Treatment (CPT) Recommendations

Approval:
On August 23, 2020, FDA issued an emergency use authorization (EUA) for COVID-19 convalescent plasma for the treatment of hospitalized patients with COVID-19

Necessary Labs:
- ❑ COVID-19 Antibody
- ❑ COVID-19 PCR

Optimal Timing:
- ➢ Earlier relative to time of infection and symptom development
- ➢ Patients typically mount their own antibody response by 8-10 days after initial infection

Concurrent Treatments:
- ❖ COVID-19 convalescent plasma can be given in concert with other therapies including antiviral agents
- ❖ If used, convalescent plasma should not be delayed while waiting benefit from other treatment
- ❖ Other treatments should not be delayed while awaiting benefit from CTP

Not candidate for convalescent plasma if:
- ○ Jehovah's witness
- ○ Patient refuses blood products
- ○ Patient on clinical trial that has convalescent plasma as an exclusion criteria
- ○ Previous use of COVID 19 monoclonal antibody

Patient Hospitalized with COVID-19 → **COVID-19 Antibody Positive**

YES → **Patient less likely to benefit from COVID-19 convalescent plasma**

NO ↓

Consider COVID-19 Convalescent Plasma as Treatment option
*****Highly consider for B-cell depleted patients*****

*****Causes of B-Cell depletion:**
- ❑ Previous Rituximab use
- ❑ B-cell lymphopenia
- ❑ Hypogammaglobulinemia
- ❑ Heme malignancy and treatment

→ **If clinically appropriate for CPT and no objection from Infectious Disease:**
- **Consent patient for blood products**
- Contact Hematology (732-507-8290) or Dr. Shuang Guo (732-507-8008) directly

✓ **Available Clinical Data: Positive Results:**

1. Case series of 17 patients with B-cell lymphopenia, prolonged COVID-19 symptoms, negative COVID 19 IgG-IgM, and positive RNAemia by PCR treated with 4 units of CPT. Within 48 hours of transfusion all but 1 patient had clinical improvement. CPT induces a decrease in temperature and inflammatory parameters within 1 week associated with oxygen weaning [1]
2. A retrospective, propensity score matched case-control study of the effectiveness of CPT in 39 patients with severe or life-threatening COVID-19 at Mt. Sinai hospital showed oxygen requirements on D14 after transfusion worsened in 17.9% of plasma recipients vs 28.2% of matched controls. Survival also improved in plasma recipients (adjusted hazard ratio (HR), 0.34; 95% CI, 0.13–0.89; chi-square test P= 0.027).[2]
3. Prospective, propensity score matched interim analysis of 316 patients enrolled at Houston Methodist Hospitals showed significant reduction (P=0.047) in mortality within 28 days, specifically in patients transfused within 72 hours of admission with anti-spike protein receptor binding domain titer of ≥1:1350 [3]
4. Open-label, expanded access program observational study of 35,322 patients showed 7-day mortality was lower (8.7%) in patients transfused with convalescent plasma within 3 days of diagnosis than if transfused 4 or more days after diagnosis (11.9%) and when antibody levels in the plasma were higher (7-day mortality of 9, 12, and 14% for high, medium and low IgG levels, respectively). Similar findings observed in 30-day mortality. [4]

✓ **Available Clinical Data: Negative Results:**

5. Randomized trial of 103 patients from China showed CPT did not result in a statistically significant improvement in time to clinical improvement within 28 days. Conclusion: Interpretation is limited by early termination of the trial, which may have been underpowered to detect a clinically important difference [5].
6. Open label, parallel arm, phase II, multicentre randomized control trial of 464 adults from India showed convalescent plasma was not associated with reduction in progression to severe COVID 19 or all cause mortality. Median neutralizing titer was lower than threshold generally considered sufficient for efficacy [6]

❖ **References:**

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5. Li L, et al. Effect of Convalescent Plasma Therapy on Time to Clinical Improvement in Patients With Severe and Life-threatening COVID-19: A Randomized Clinical Trial. JAMA. 2020 Aug 4;324(5):460-470. doi: 10.1001/jama.2020.10044. Erratum in: JAMA. 2020 Aug 4;324(5):519. PMID: 32492084; PMCID: PMC7270883.
6. Agarwal A, PLACID Trial Collaborators, et al. Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicentre randomized controlled trial (PLACID Trial). BMJ. 2020 Oct 22;371m3939.doi:10.1136/bmj.m3939. Erratum in:BMJ.2020 Nov 3;371:m4232. PMID: 33093056; PMCID: PMC7578662