

## Critical Care

**SESSION TITLE:** Medical Student/Resident Critical Care Posters

**SESSION TYPE:** Med Student/Res Case Rep Poster

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### ANAPHYLACTIC SHOCK IN A PREGNANT PATIENT WITH COVID-19 IN THE SETTING OF CONVALESCENT PLASMA TRANSFUSION

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**INTRODUCTION:** The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has to date infected millions of people with the death toll in the hundreds of thousands. Convalescent plasma is currently in trials as a potential therapy for coronavirus disease 2019 (COVID-19). There is a dearth of research on pregnant women who have received convalescent plasma, causing a limited knowledge base in the management of peripartum and postpartum patient care.

**CASE PRESENTATION:** A 36-year-old Hispanic 31-week pregnant female presents with persistent cough, worsening shortness of breath, and body aches for 1 week. SARS-Cov-2 PCR was positive, and she was admitted for acute hypoxemic respiratory insufficiency secondary to COVID-19. Throughout the hospitalization, she was evaluated by Maternal-Fetal Medicine who placed her on betamethasone for fetal lung development and Infectious Disease who started Ceftriaxone and Azithromycin in addition to convalescent plasma. Unfortunately, the patient's hypoxia worsened, eventually requiring Vapotherm. A Rapid Response was called for hypotension while the patient was receiving convalescent plasma. She was given a 1 L normal saline bolus, epinephrine, dexamethasone, Benadryl, Pepcid, and was started on a Levophed drip for anaphylactic shock and transfusion reaction. The patient was brought to the operating room for emergent delivery. Post-delivery, she was transferred to the intensive care unit, intubated and required pressor support. Chest X-ray demonstrated bilateral infiltrates, and the patient continued to be hypoxic with poor PaO<sub>2</sub>/FiO<sub>2</sub> ratio requiring proning. Remdesivir was started after the delivery. Troponin levels were significantly elevated, and ECHO showed severe global hypokinesis and ejection fraction of 20% concerning for peripartum cardiomyopathy vs. COVID-19 cardiomyopathy. She was initially started on a heparin drip. However, this was discontinued after a significant drop in hemoglobin, which required a blood transfusion.

**DISCUSSION:** Convalescent plasma, derived from the antibody-rich blood of recovered patients, has been utilized as an effective therapy for viral disease in the past. Although considered to be a well tolerated therapy, plasma transfusion is not without risk and serious adverse events can occur. Critically ill patients receiving plasma transfusions are at high risk of developing transfusion-associated circulatory overload (TACO), transfusion-related lung injury (TRALI), and allergic or anaphylactic reactions.

**CONCLUSIONS:** Convalescent plasma, containing COVID-19 antibodies from recovered patients, is currently being offered as a treatment to hospitalized patients. The patient's clinical course highlights the potential serious adverse reactions to this therapy and suggests that convalescent plasma should be cautiously utilized especially in critically ill patients who are at increased risk of serious transfusion reactions.

**Reference #1:** Valk et al. Convalescent plasma or hyperimmune immunoglobulin for people with COVID-19: a rapid review. Cochrane Database of Systematic Reviews 2020, Issue 5. Art. No.: CD013600.

**Reference #2:** Duan et al. Effectiveness of convalescent plasma therapy in severe COVID-19 patients. Proceedings of the National Academy of Sciences Apr 2020, 117 (17) 9490-9496.

**Reference #3:** Pandey S, Vyas GN. Adverse effects of plasma transfusion. Transfusion 2012; 52 Suppl 1:65S-79S.

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