

COVID-19: Is the Plasma of Convalescent Patients Helpful?

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Convalescent plasma has been used in the past for treatment of viral infections. In the years, 1915 - 1917, during the time of the Spanish flu, convalescent plasma was believed to have shown positive results though firm data is unavailable.

A recent trial during the present COVID-19 pandemic has shown promising outcomes, but the study was not a controlled one [1].

Previously, in 2014, during the Ebola outbreak, WHO had recommended the use of convalescent plasma obtained from patients who had recovered from the Ebola infection, as an empirical form of treatment.

The rationale behind the use of convalescent plasma in the treatment of COVID-19 patients is that the antibodies from the plasma may suppress the rising viremia [2].

A recent study involving 5 seriously ill COVID-19 patients was conducted at the Shenzhen Third People's Hospital in China [3]. The patients ranged between the ages of 36 and 60 years, while the donors of the convalescent plasma ranged between the ages of 18 and 60 years and had confirmed COVID-19 infection but were now asymptomatic. The convalescent plasma was administered to the critically ill patients between day 10 - 22 of admission [3].

The clinical parameters which were monitored in the critically ill patients before and after plasma administration included:

- Body temperature
- Sequential Organ Failure Assessment (SOFA) Scores
- PaO₂/FiO₂
- Viral load
- Serum antibody titer
- Acute Respiratory Distress Syndrome status
- Ventilator usage.

It was observed that within 3 days of administering the convalescent plasma, 4 of the 5 patients showed body temperature normalization. The SOFA scores reduced for all 5 patients and the PaO₂/FiO₂ score increased indicating respiratory improvement. The viral load in all 5 patients reduced and finally became negative after 12 days of treatment with the convalescent plasma.

The neutralizing antibody titers for the virus increased significantly and 3 patients were able to be weaned off the ventilator by the end of the 2nd week of treatment. Three of the five patients were discharged from the hospital after 51, 53 and 55 days of treatment, while the other two patients continued to be stable at 37 days post transfusion. This study thus showed positive results to plasma transfusion from convalescent patients. However, this study had limitations in that it had a very small cohort of only 5 patients with no controls. Moreover, the patients were also treated with other agents such as antiviral therapy concomitantly, so the exact efficacy of the convalescent plasma only, could not be conclusively proven.

Another study with 4 patients too showed encouraging results, though, here again, the sample size was small [4].

The U.S. Food and Drug Administration (FDA) has recently approved the administration of convalescent plasma in COVID-19 patients in certain instances only, namely, clinical trials, expanded access and single patient emergencies [5].

Hence, it appears that convalescent plasma does hold some promise in the treatment of COVID-19 patients, though more studies need to be conducted with a larger cohort of patients and without significant concomitant treatment.

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