

Letter to the Editor



Is COVID-19 Convalescent Plasma an option for Africa?

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To the editors of Africa Sanguine

Coronavirus disease 2019 (COVID-19) has infected millions globally with no effective vaccines or cure currently available. While most illnesses are mild or uncomplicated, approximately 14% are complicated by severe respiratory disease, shock, multiorgan failure, or death, and tens of thousands have died in Africa.¹

Preliminary reports from China revealed reduced inflammation and viral loads with improved blood oxygen levels following administration of COVID-19 convalescent plasma (CCP) to critically infected patients, and the United States of America has begun its use in patient therapy following approval from the Food and Drug Administration (FDA).^{2,3} Further trials to ascertain efficacy are currently ongoing in several other countries.³

CCP refers to plasma collected from donors who have recovered from COVID-19 whose plasma is thought to contain virus-specific antibodies which confer immediate passive immunity to recipients, thereby possibly improving the clinical course and outcomes.⁴ Plasma transfusion is not a novel therapy, as convalescent plasma has been reported successful in the treatment of influenza, severe acute respiratory syndrome (SARS-CoV), Middle East respiratory syndrome (MERS-CoV) and Ebola virus disease.^{5,6}

Unfortunately, in sub-Saharan Africa, with blood donation deficits, reliance on replacement and paid donors, laboratory and operational constraints, the majority of blood transfusions are collected as whole blood, and few countries have the capacity to separate the collected blood units into components such as plasma, platelets, or blood cells.⁷ This may hinder African countries' ability to participate in CCP trials.

Despite aphaeresis technology's potential, only Algeria, Libya, Egypt, Nigeria, Ghana, Namibia, South Africa and few other African countries have such services available and even then, to a limited extent.⁸ Reliance on whole blood transfusions, widespread unavailability of blood component production technology, erratic power supply, inadequate storage capacity, transportation challenges, clinicians' inexperience in the appropriate use of blood components, and limited financial resources are major challenges on the continent. Furthermore, according to recommendations, the production of CCP requires that neutralising antibody titre levels in donor samples are assessed, and pathogen inactivation done to target transfusion-transmissible infections and improve the consistency of plasma protein properties.⁹ Neither of these requirements are readily available in Africa.³

Blood donation rates are almost ten times less in low-income countries compared to high-income countries due to fears of either contracting HIV, hepatitis B or sudden death.¹⁰ In addition, anaemia, malaria, and poor nutrition contribute to low donation rates. Whereas internationally, recovered COVID-19 patients have willingly donated and ensured a steady supply of CCP for trials and compassionate use, in Africa, the

hindrances to blood donation could be further thwarted by stigmatisation concerns.^{4,11} Aphaeresis technology could therefore allow for donations by a relatively small number of donors to be transfused to several more patients, thereby optimising the limited number of available, willing and viable pool of unpaid donors.⁸ Ironically, it is in these environments where aphaeresis technology is largely unavailable that it is sorely needed to enhance efficiencies in donations.

CONCLUSION

Over nine hundred thousand COVID-19 cases have been recorded so far in Africa, with more than twenty-one thousand deaths. Exploring the possibilities of CCP could reduce deaths, shorten hospital stays, and thereby open up access to health care for others on a continent where COVID-19 has led to marked disruptions in access to healthcare services for both acute and pre-existing medical conditions.^{12,13} The adoption of locally applicable strategies to produce CCP as an investigational product for trials in Africa is therefore required. If effective, CCP could not only aid the battle against emerging infectious diseases and improve health outcomes from COVID-19 but could also help improve attitudes towards voluntary blood donation on the continent.

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