PLASMA DONOR APPLICATION

Introduction:

The recent coronavirus disease 2019 (COVID-19) epidemic developed into an unprecedented global public health crisis with significant humanitarian consequences. As of 19 April 2020, the World Health Organization has been informed of 2,241,359 confirmed cases of COVID-19, with 152 551 deaths (6.8%) documented worldwide. An individual who is sick with infectious diseases and recovers has blood drawn and screened for particular microorganism neutralizing antibodies. Following identification of those with high titers of neutralizing antibody, convalescent plasma containing these neutralizing antibodies can be administered in individuals with specified clinical disease to reduce symptoms and mortality. Hence, convalescent plasma transfusion (CPT) has been the subject of increasing attention, especially in the wake of large-scale epidemics. We conducted a systematic review to evaluate available data for the clinical effectiveness of convalescent plasma for the treatment of COVID-19. This will help to provide clinicians and scientists with an overview of scientific evidence on a potential treatment option and better clinical management of critically ill COVID-19 patients. Normally, certain amount of human body weight comes from blood. For adults, it is 4-6 litres of blood. Essential liquid plays an important role in transporting oxygen and nutrients to cells and removing carbon dioxide, ammonia and other waste products. Blood is a very common tissue composed of over 4000 different types of components

Literature Review

Several experiments have been carried out over the years by different groups of researches. Here are some of the following groups:

[1] Denuis O'Neil(1999). "Blood component" Archived from the original on June 5,2013. Normally, certain amount of human body weigth comes from blood. For adults, it is 4-6 litres of blood. This essential liquid plays an important role in transporting oxygen and ammonia and other waste products.Blood is a very common tissue composed of over 4000 different types of component.

[2] ways to keep your plasma healthy, Original Archived November 1, 2013, Accessed November 11, 2011. Plasma donation is one of the most accepted practices for saving lives. While earning a few dollars. The whole process can take some time, but it's a move when you feel like you're just a hero, but you're adding value to yourself. The term "healthy" does not mean only in the absence of disease. It also means that you are healthy enough.

[3] Ripathis S, Kumar V, Prabhakar A, Joshi S, Agarwal A(2015). "Microscale passive plasma separation: A Review od Design Principles and Microdevices," J. Micromech Micro 25 (8): 083001; plasma separation is of great importance in the fields of diagnosis and healthcare. Due to the lagging transition to microscale, these recent trends are a rapid shift towards shrinking complex macro processes.

In this proposed system, a donor who wants to donate plasma can simply upload their recovered covid19 certificate and can donate the plasma to a blood bank. The blood bank after checking the donor certificate can make a request to the donor when the donor accepts the request, they can add the required number of units they need. The hospital can send a request to the blood bank that needs the patients emergency plasma and to get the plasma from the blood bank.

References:

1. Jaworski P. Bloody well pay them: the case for voluntary remunerated plasma collections. Washington, D.C.: Niskanen Center; 2020:

   https://www.niskanencenter.org/bloody-well-pay-them-the-case-for-voluntary-remunerated-plasma-collections/.

   Accessed 2021 May 15.

2. American Red Cross. The importance of plasma in blood. 2021;

   https://www.redcrossblood.org/donate-blood/dlp/plasma-information.html.

   Accessed 2021 May 22.

3. Kluszczynski T, Rohr S, Ernst R. Key economic and value considerations for Plasma-Derived Medicinal Products (PDMPs) in Europe. (White paper commissioned by the Plasma Protein Therapeutics Association (PPTA)). Baarn (Netherlands): Vintura; 2020:

https://www.vintura.com/wp-content/uploads/2020/03/White-paper-key-economic-and-value -considerations-for-plasma-derived-medicinal-products-PDMPs-in-Europe_Vintura -and-PPTA.pdf.

Accessed 2021 May 15.

4. WHO. Self-sufficiency in blood and blood products based on voluntary non-remunerated blood and plasma donations. [2011?]:

https://www.who.int/bloodsafety/transfusion_services/self_sufficiency/en/ .

Accessed 2021 May 22.

5. Health Canada. Protecting access to immune globulins for Canadians: final report of the Expert Panel on Immune Globulin Product Supply and Related Impacts in Canada. Ottawa (ON): Health Canada; 2018:

https://www.canada.ca/en/health-canada/programs/expert-panel-immune-globulin-product-supply-related-impacts-canada/protecting-access-immune-globulins-canadians.html

Accessed 2021 Jun 2.

CONCLUSION :

There is a compelling need to control the greatest global health crisis by COVID-19 outbreak. Currently, there is no reliable therapeutic options for data derived from five independent studies of 27 patients suggests, in addition to antiviral/antimicrobial drugs, CPT could be an effective therapeutic option with promising evidence on safety, improvement of clinical symptoms, and reduced mortality. We recognize that a definitive conclusion cannot be drawn on optimal doses and treatment time point for the CPT to COVID-19, a large multicenter clinical trials are urgently needed to tackle this pandemic.