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Academy of the Disaster Research Unit

CoronaSys

CoronaSys Innovation sheet 5

Convalescent plasma therapy

Background

As of late August 2020, the USA have reported around 5.780.000 Covid- 19 cases and 178.000 deaths related to Covid- 19[1]. This makes the USA to one of the countries that are hit hardest by the pandemic[2]. Since there is no causal therapy and no vaccine available yet, clinicians and researchers have been searching for other solutions to support recovery. One of those possible solutions is convalescent plasma therapy. Together with President Trump, the U.S. Food & Drug Administration (FDA) announced on August 23, 2020, that they issued an emergency authorization for convalescent plasma therapy[3].

Features

The therapy approach is based on the transfusion of blood plasma of recovered Covid-19 patients to patients currently suffering from the disease. Because there is no vaccine yet that stimulates the formation of antibodies against SARS-CoV-2, patients are given antibodies from people who have formed them after a natural infection[4].

Potentials

Plasma therapy has been used for more than 100 years and is considered safe for patients[56]. Plasma may particularly help patients in the early stages of the disease[7]. This is indicated by a study on the efficacy of the treatment conducted by the Mayo Clinic: Out of 35,000 patients treated with plasma, those who were treated earlier benefited more from the treatment. In the group that received the plasma within the first three days of their diagnosis, 8.7 percent died within the following week, while a transfusion after four or more days resulted in a death rate of 11.9 percent[8].

State of information: 27/08/2020

FDA emergency authorization: August 2020

Country: USA

Focus area: Treatment

Beneficiaries:

- Possibly patients in early stages of Covid-19 infections

Points to consider

However, the Mayo Clinic- study is not sufficient proof of the treatment's efficacy for Covid- 19, since there was no comparison group[910]. A Cochrane review also found serious shortcomings in the overall evidence to date, both in terms of the quantity of the studies and their quality[11]. Besides, the emergency authorization does not correspond to a formal authorization with much higher hurdles. And while plasma treatment has been used safely against different diseases over the last 100 plus years, its effectiveness on different diseases is very mixed[12]. Plasma supply is also limited, as it can only be obtained from blood donations. The amount of plasma simply would not be enough for the number of patients who need help in the course of a pandemic wave in the clinics[13]. Plasma therapy is also not the announced breakthrough: approximately 70,000 people have already received plasma under FDA's "expanded access" program[14]. Critics claimed that the FDA and President Trump were pushing the therapy ahead of the republican national convention this week to support Trump´s narrative about the pandemic[15].

Conclusion

There are currently around 50 studies underway worldwide[16], which will examine the topic and are expected to show results by the end of the year. Twenty-two of these studies are Randomized Controlled Trials. Plasma therapy could, therefore, be a supplement if its effectiveness can be proven. However, it is by no means a comprehensive solution.

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Background on Innovation Sheet Series

As part of a real-time evaluation of the SARS CoV 2 pandemic (with focus on epidemiological, medical, economical, societal, technical and cultural developments in Germany and Armenia) the CoronaSys research team, under the leadership of Prof. Dr. Martin Voss, is conducting a continuous monitoring of developments and medical, technical, and social innovations concerning Covid-19.

Multiple national and international media outlets, research platforms, and scientific and organizational guidelines, briefs, and updates are screened to feed into this outlet. The rationale behind this is to support the projects' network partners in Armenia and Germany with short summaries of key developments and promising innovations that are shaping the global, German, and Armenian outbreak response and recovery.

The aim of these short briefs is to give condensed and structured information on selected innovations emerging out of the conducted horizon scanning. This could be mainstream big-ticket items or fringe subjects that are easily overlooked in the global flood of information. Some innovations will be followed through their evolution in time while others may only appear once. While subjectively selected, the briefs are descriptive in nature and leave analysis and critical interpretation to the reader. Network partners in both countries are invited to provide feedback on their interest areas and suggest particularly relevant topics for the CoronaSys Workshop series.

The CoronaSys Innovation Sheet Series is published by the Academy of the Disaster Research Unit, which is, as a non-profit limited liability company, a spin-off of the Disaster Research Unit at the Free University of Berlin. The series is part of the research project "CoronaSys: Addressing the corona pandemic in Armenia through systemic risk management", sponsored by the German Federal Ministry of Education and Research.

If you have any questions, suggestions, or if you wish to be taken on (or off) the project mailing list for CoronaSys updates, innovation sheets, and workshop invitations, please send a message to Janina Schäfer (schaefer@a-kfs.de). For general project inquiries, you may contact the team lead Sara Merkes (merkes@a-kfs.de) or the project lead Martin Voss (voss@a-kfs.de).

Previous CoronaSys Innovation Sheets

1 “New” Antiviral Face Masks
2 ”Dyphox” Surface Coating
3 MOVES SLC Portable ICU
4 Portable TRI- KLEEN 500UV

All previous CoronaSys Innovation Sheets are available online:
http://coronasys.a-kfs.de/category/innovation-stream/

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