

LITERATURE SURVEY

LITERATURE SURVEY 1

OBJECTIVE: Convalescent Plasma Therapy is an investigation therapeutic method recommended as a treatment strategy for COVID- 19 as vaccines, and proper treatment methods were unavailable. The therapy involves transfusing antibody contained plasma from the COVID recovered individuals (donors) into critically affected patients. It can accelerate the recovery of the recipient. The effectiveness of antibodies is affected by the health and clinical history of donors, according to research. It implies the possibility of implementing Machine Learning Classification models for predicting the Eligible donors (who meet the threshold antibody level for donation) and Regression models to predict the antibody level value of a donor from the person's clinical history before conducting tests for the same. The proposed system can help the health authorities approach the most probably efficient donors for the therapy rather than wasting time and test kits on a random donor who may or may not be eligible. The results from various ML algorithms trained on a synthetic clinical history dataset are examined and assessed as significant to some degree. The system has to be validated against real data to arrive at reasonable conclusions. This paper demonstrates how a data-driven solution is more beneficial than the conventional methods for donor search.

Reference : J. Epstein and T. Burno-Uf, "Points to consider in the preparation and transfusion of COVID-19 convalescent plasma", *V ox sanguine*, vol. 115, no. 6, pp. 485-487, August 2020.

LITERATURE SURVEY 2

OBJECTIVE: A patient who has fully recovered from COVID-19 can help patients currently fighting infection by donating plasma. Because it is an

infection killer, the plasma now contains antibodies against COVID-19. These antibodies provided the immune system with one way to fight the virus when it was sick, so plasma can be used to fight diseases. Therefore, this paper monitoring recovering patients based on the clustering of data and classifying them using fuzzy hierarchical clustering to reach the plasma as soon as possible.

Reference : H. Hao, S. Cheng, D. Wu et al., "Reconstructing the Complete Dynamics of COVID-19 Transmission in Wuhan", Nature, 2020.

LITERATURE SURVEY 3

OBJECTIVE: Blood or plasma transmission is one of the most effective treatments for critical diseases like Covid 19. Nowadays, voluntary blood donation has become the major source of blood supply. Several mobile applications are currently available to establish the initial communication between blood donors and receivers. Recommending the right potential donor during a blood search can save the life of a critical patient with an immediate response from the donor. However, the requirement of an advanced recommendation system has not been addressed by any of the existing mobile applications. In our research work, we have designed a real-time, intelligent, and rational recommendation system using sentiment analysis of the user's feedback, response rate of the donor, and the current geo-location information and finally develop a cross-platform application for blood collection and distribution system. To process and generate features from the user feedback, we have designed a Bi-directional LSTM-based deep learning model. The quality of the recommendation of the potential donors has significantly improved. Moreover, we have conducted rigorous requirement analysis from real users and evaluated the performance of our application through both indoor and outdoor testing.

Reference: S. N. Diba, Blood donation application with implementation of machine learning, 2018.

