



Bezbedna transfuzija u uslovima pandemije Kovid 19

Safe Transfusion in the Conditions of the Covid 19 Pandemic

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Apstrakt

Svet se od kraja 2019. godine, pa sve do danas, suočava sa Kovid 19 pandemijom, koja je od samog svog početka značajno uticala na snabdevanje krvnim komponentama i na bezbednost transfuzije. Iako do danas nije zabeležen nijedan slučaj prenosa SARS-CoV-2 putem krvi, potvrđen je vertikalni prenos virusa sa majke na novorođenče. U tom smislu, odbijanje zaraženog i potencijalno zaraženog davaoca krvi je najznačajnija strategija koja smanjuje rizik prenosa virusa putem krvi na najmanju moguću meru.

Prvi korak je edukacija potencijalnih davalaca o kriterijumima za samoisključivanje od davanja krvi, a koji se zasnivaju na faktorima rizika za prenošenje SARS-CoV-2 virusa i na kliničkim simptomima infekcije. Skrining potencijalnih davalaca krvi podrazumeva temeljno uzetu anamnezu od davalaca, sa posebnim akcentom na istoriju putovanja i istoriju kontakata, kao i na simptome suspektne kovid 19 infekcije. Osobe sa povišenom telesnom temperaturom, simptomima suvog kašlja ili simptomima suspektne kovid 19 infekcije se odbijaju za davanje krvi, a na period od najmanje 14 dana odbijaju se i davaoci sa potvrđenim SARS-CoV-2 virusom, nakon povlačenja simptoma ili negativnog rezultata ponovljenog PCR testiranja. Ove mere su se pokazale efikasnim, kada se radi o simptomatskim davaocima, ali ne mogu da prevaziđu mogućnost davanja krvi od asimptomatskih kovid 19 pozitivnih davalaca. Dostupni skrining testovi nisu pouzdani, jer virusna RNK, testirana preko nazofaringealnog brisa i PCR metodom, najčešće ostaje neotkrivena pre pojave prvih simptoma. Takođe, kod asimptomatskih davalaca serološki test je negativan, a serokonverzija nastupa između treće i četvrte nedelje od pojave simptoma. Značajno mesto u održavanju bezbednosti transfuzije u uslovima Kovid 19 pandemije ima i tzv. „postdonacijska informacija“, odnosno povratna informacija o zdravstvenom stanju dobrovoljnog davaoca krvi unutar perioda od 14 dana od davanja krvi.

U literaturi je prijavljeno nekoliko slučajeva transfuzije krvi od kovid 19 pozitivnih davalaca. Prvi je slučaj transfuzije trombocita od davaoca, kome je potvrđena infekcija 3 dana nakon trombocitafereze, pacijentu sa teškom aplastičnom anemijom, koji je i nakon primljene transfuzije ostao negativan na SARS-CoV-2. Takođe, potvrđeno je da 9 pacijenata, koji su primili transfuziju krvnih komponenti, pripremljenih od kovid 19 pozitivnih davalaca koji su u trenutku davanja krvi bili bez simptoma, nisu razvili infekciju. Pretpostavlja se da je koncentracija virusa u krvi asimptomatskih davalaca nedovoljna da bi se prenela infekcija primaocu krvi ili se virus neutrališe tokom različitih faza procesiranja i pripreme krvnih komponenti.

Ispitivanja su pokazala da je inaktivacija patogena korišćenjem riboflavina i UV zračenja u jedinicama plazme i koncentratima trombocita, ali i u jedinicama cele krvi, efikasna u smanjenju rizika transmisije SARS-CoV-2 transfuzijom. Ova metoda dovodi do log redukcije virusnog titra SARS-CoV-2 ≥ 4.53 u koncentratima trombocita i ≥ 3.40 u jedinicama plazme.

Abstract

From the end of 2019 until today, the world is facing the Covid 19 pandemic, which from its very beginning has significantly affected the supply of blood components and the safety of transfusion. Although no cases of SARS-CoV-2 blood transmission have been recorded so far, vertical transmission of the virus from mother to a newborn child has been confirmed. In this sense, the rejection of an infected and potentially infected blood donor is the most important strategy that reduces the risk of transmission of the virus through the blood to the smallest possible extent.

The first step is to educate potential donors about the criteria for self-exclusion from donating blood, which are based on risk factors for transmission of the SARS-CoV-2 virus and on clinical symptoms of infection. Screening of potential blood donors involves a thorough anamnesis taken from the donors, with special emphasis on travel and contact history, as well as symptoms of suspected Covid 19 infection. People with elevated body temperature, symptoms of dry cough, or symptoms of suspected Covid 19 infection are refused to donate blood, and donors with confirmed SARS-CoV-2 virus are also denied for a period of at least 14 days, after the withdrawal of symptoms or a negative result of repeated PCR testing. These measures have proven to be effective when it comes to symptomatic donors, but they cannot overcome the possibility of donating blood from asymptomatic covid 19 positive donors. The available screening tests are not reliable, because the viral RNA, tested through a nasopharyngeal swab and the PCR method, usually remains undetected before the first symptoms appear. Also, in asymptomatic donors, the serological test is negative, and seroconversion occurs between the third and fourth week after the onset of symptoms. An important place in maintaining the safety of transfusion in the conditions of the Covid 19 pandemic is also the so-called. “post-donation information”, i.e. feedback on the health condition of the voluntary blood donor within a period of 14 days from the blood donation.

Several cases of blood transfusion from Covid 19 positive donors have been reported in the literature. The first is a case of transfusion of platelets donation, whose infection was confirmed 3 days after thrombocytapheresis, to a patient with severe aplastic anemia, who remained negative for SARS-CoV-2 even after the transfusion. Also, it was confirmed that 9 patients who received a transfusion of blood components, prepared from Covid 19 positive donors who were symptom-free at the time of blood donation, did not develop an infection. It is assumed that the concentration of the virus in the blood of asymptomatic donors is insufficient to transmit the infection to the blood recipient or that the virus is neutralized during various stages of processing and preparation of blood components.

Tests have shown that pathogen inactivation using riboflavin and UV radiation in plasma units and platelet concentrates, but also in whole blood units, is effective in reducing the risk of SARS-CoV-2 transmission by transfusion. This method leads to a log reduction of SARS-CoV-2 viral titer ≥ 4.53 in platelet concentrates and ≥ 3.40 in plasma units.

