SARS-COV-2 REAL TIME POLYMERASE CHAIN REACTION TESTING OF CORNEAS FROM POST-MORTEM SARS-COV-2 POSITIVE DONORS

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Purpose Possible transmission of SARS-CoV-2 from donors to recipients via cornea grafts is still a concern of the transplantation community. Current recommendations are to avoid corneal transplants from donors with ongoing SARS-CoV-2 infection or those recently exposed to it. During pandemic period in Croatia 21/1113; (1.9%) corneas were procured from donors positive for SARS-CoV-2 by postmortem nasopharyngeal swab tests. That tissue was discarded. Due to the lack of knowledge about the infectivity of such corneas, we started prospective study of SARS-CoV-2 presence in cornea tissue. Here we show our first results.

Methods In the study period we had four corneas procured from two post-mortem SARS-CoV-2 positive donors. For the presence of SARS-CoV-2, analysis is performed on donor serum, hypothermic storage medium and cornea tissue lysate. Corneas were stored in hypothermic condition for 8 to 10 days, after which tissue was macerated and washed with PBS. The intracellular content was released by incubation with lysis buffer, followed by centrifugation. Next, tissue lysate, serum and hypothermic storage medium were in parallel subjected to fully automated nucleic acid isolation and RNA expression was analyzed by qRT-PCR. During isolation, RNAsP was used as internal control for successful nucleic acids isolation.

Results No SARS-CoV-2 RNA was detected in the donors serum, storage medium and cornea tissue from donors who were SARS-CoV-2-positive upon tissue procurement. In nasopharyngeal swabs of post mortem positive donors cycle thresholds values of viral copies were high (CT>34), indicating that there was small number of viral particles in infected donors that could have impact on negative results in tested tissue.

Conclusion Our data suggested that corneas may not be SARS-CoV-2 permissive if the donor was postmortem positive. Further research is required to gain more coherent insight into SARS-CoV-2 transmission via corneal transplantation.