We report on the results of a recent investigation (Bayyoud et al., *Cornea*, 2020, preliminary accepted) that suggests the absence of severe acute respiratory syndrome coronavirus 2 RNA (SARS-CoV-2 RNA) in human corneal tissues of coronavirus disease 2019 cadaveric donors (COVID-19 donors). Although a selection bias for severe inpatient disease and a small donor pool (10 donor eyes) need to be cited as limitations, we consider this study to be timely and relevant to the literature—not least in view of continuing eye bank activities and, as the most obvious reason, the concern related to transplantation of infected tissue.

**Current guidelines of the eye bank associations, the European Center for Disease Control and Prevention, and the US Centers for Disease Control and Prevention**

The guidelines of the eye bank associations (e.g., Eyebank Association of America) do not currently include an explicit recommendation for testing of postmortem tissue for SARS-CoV-2 RNA. This is in line with the fixed procedure of the European Center for Disease Control and Prevention (ECDC) and its US counterpart, the US Centers for Disease Control and Prevention (CDC), in such cases. There are currently no data available demonstrating the frequency of positive detection of SARS-CoV-2 RNA in the pharyngeal cavity by means of reverse transcriptase polymerase chain reaction (RT-PCR) in relation to the time of death. However, experience gained from the other two coronavirus epidemics, i.e., severe acute respiratory syndrome coronavirus 1 (SARS-CoV-1) and Middle East respiratory syndrome coronavirus (MERS-CoV), suggests that this may be the case post mortem.

**Possibility of transmitting SARS-CoV-2 via tissue transplantation**

The present study showed that SARS-CoV-2 RNA could not be detected in bulbar conjunctiva, anterior chamber fluid, or corneal tissue (endothelium, stroma, and epithelium) from COVID-19 cadaveric donors using RT-PCR. Therefore, one can conclude that the risk of SARS-CoV-2 transmission via conjunctival and corneal tissue from deceased donors is very low. However, further and larger studies are needed to confirm these results. The findings are of great relevance for the collection, processing, and transplantation of tissue.

Other factors that could have an effect on the RT-PCR test result also need to be taken into consideration. These include the duration of COVID-19 disease, the time of postmortem sample collection, the method used for sample collection, testing capacities in some regions, and, not least, the pending validation of RT-PCR testing for cadaveric donors. Therefore, negative results need to be interpreted with caution.

The current standpoint is that viruses that primarily affect the respiratory tract cannot be transmitted via transplanta-

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**Abbreviations**

| Abbreviation | Description |
|--------------|-------------|
| ACE-2 | Angiotensin-converting enzyme-2 |
| CDC | Centers for Disease Control and Prevention |
| COVID-19 | Coronavirus disease 2019 |
| ECDC | European Centre for Disease Prevention and Control |
| EEBA | European Eye Bank Association |
| GAEBBA | The Global Alliance of Eye Bank Associations |
| MERS-CoV | Middle East respiratory syndrome coronavirus |
| RT-PCR | Reverse transcriptase polymerase chain reaction |
| SARS-CoV-1 | Severe acute respiratory syndrome coronavirus 1 |
| SARS-CoV-2 | Severe acute respiratory syndrome coronavirus 2 |
| WHO | World Health Organization |
**Zusammenfassung · Abstract**

**Erste Ergebnisse zu Untersuchungen der menschlichen Hornhaut auf SARS-CoV-2-RNA**

**Zusammenfassung**

Die ersten Untersuchungen von humanen Hornhauten von COVID-19(Coronavirus Disease 2019/Coronaviruserkrankung 2019)-Spender geweben auf SARS-CoV-2-RNA vorhanden ist. Derzeit wird nicht empfohlen, eine routinemäßige Testung von postmortalen Spendegeweben auf SARS-CoV-2-RNA durchzuführen. Dies begründet sich u. a. in den Faktoren, die das RT-PCR ("reverse transcription polymerase chain reaction"/Reverse-Transkriptase-Polymerasekettenreaktion) Testergebnis beeinflussen können.

**Schlüsselwörter**

RT-PCR · Gewebegewinnung und -verarbeitung · COVID-19 · Hornhaut · Gewebespender

**First results of investigations of SARS-CoV-2 RNA in human corneal tissue**

**Abstract**

Preliminary investigations of human corneal tissues from coronavirus disease 2019 (COVID-19) cadaveric donors indicated that no severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) RNA is present. Current eye banking guidelines do not recommend any type of routine testing for SARS-CoV-2 RNA in post-mortem donor tissue. This is partly based on factors that can influence the test results of the reverse transcription polymerase chain reaction (RT-PCR).

**Keywords**

RT-PCR · Tissue procurement and processing · COVID-19 · Cornea · Tissue donor

**Practical conclusion**

- The risk of transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) via transplantation is currently classified as low.
- No cases of SARS-CoV-2 transmission via blood transfusion or tissue/cell transplantation have been documented to date.
- All test results for postmortem tissue should be interpreted with caution since a validated reverse transcription polymerase chain reaction test is not available as yet.

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**Compliance with ethical guidelines**

**Conflict of interest.** T. Bayyoud, T. Iftner, K.U. Bartz-Schmidt, J.M. Rohrbach, M. Ueffing, M. Schindler, and S. Thaler declare that they have no competing interests.

For this article no studies with human participants or animals were performed by any of the authors. All studies performed were in accordance with the ethical standards indicated in each case.

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