**P28-A146**  THE IMPACT OF COVID-19 PANDEMIC ON EYE BANKING IN THE LUBLIN EYE BANK, POLAND

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**Purpose** The purpose of this study was to investigate the impact of the COVID-19 pandemic on the Lublin Eye Bank activities.

**Methods** We compared the corneal donors screening rules, number of harvested corneas before, during, and after the pandemic (2019, 2020, 2021, 2022 years).

**Results** In 2019 we had 182 corneal donors and 360 harvested corneas; in 2020 – 114 donors and 227 corneas; in 2021 – 151 donors and 300 corneas, and in 2022 till the 15th November – 115 donors and 228 corneas. From the 11th March 2020, when the World Health Organization had declared a global pandemic, our Eye Bank ceased all activities until the 10th May 2020. We started then, according to recommendations of Polish Transplantation Society, performing a nasopharyngeal swabs specimen collecting for every corneal donor. In 2020 we noted only 1 positive donor, whereas in 2021 we had 9 and in 2022 - 12 SARS-CoV-2 positive donors, respectively. Overall mean reduction in the number of corneal donors and obtained corneal tissues of 6,3% was observed in the Lublin Eye Bank.

**Conclusion**

1. COVID-19 pandemic had an influence on the Lublin Eye Bank activities.
2. Fortunately, the pandemic did not have a major impact on the number of donors as well as the corneas collected in our bank.

**P29-A135**  IMPACT OF COVID-19 ON CORNEAL DONATION AND TRANSPLANTATION IN HONG KONG

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**Purpose** With many health and policy issues arising from COVID-19, the Hospital Authority Eye Bank of Hong Kong encountered challenges related to ocular donor suitability and availability. This review aims to analyse the impact of a global pandemic on corneal donation and transplantation in 2020 and 2021, compared to the pre-COVID period in 2019.

**Methods** This cohort study evaluated data collected from the Hospital Authority Eye Bank from January 2019 to December 2021. The number of corneas harvested, including voluntary donations initiated by the deceased’s relatives and approached cases by Eye Donation Coordinators, tissue distributed, transplanted and disposed, the reason for disposal as well as the usage of the transplanted corneas in 2020 and 2021 were compared to the pre-COVID period of 2019.

**Results** The number of corneas harvested dropped by 17.6% in 2020 compared to the pre-COVID period of 2019, and rose almost back to baseline in 2021. However, despite having near-normal number of harvested corneas in 2021, the number of corneal transplants using fresh corneas were still reduced by 30% in 2020 and 27% 2021. The observation can be explained by the seven-fold increment in disposal due to suboptimal quality from a cancer donor in 2021. The proportion of corneas used for optical, therapeutic and tectonic purposes remained stable throughout the three years.

**Conclusion** COVID-19 yielded brief periods of service interruption and reduced number of eligible donors, leading to a noticeable rise in solicitation from cancer donors in 2021. The pandemic resulted in a longer corneal transplant waiting time. Nevertheless, The proportion of different corneal transplantation remained stable, with even the development in new techniques such as Descemet’s Membrane Endothelial Keratoplasty and enhancement in services such as provision of ultra-fresh Keratolimbal allografts despite the limitations in the COVID-19 era.

**Eeba 2023 Session IV – Poster I**

**P30-A119**  MICROBIAL CONTAMINATION OF AMNIOTIC MEMBRANE

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**Purpose** This retrospective study aims to compare the rate of microbial contamination in fresh, non-preserved amniotic tissue as opposed to decontaminated cryopreserved tissue, thereby being able to determine the efficiency of the decontamination procedures applied during amniotic tissue preparation in the Cornea Bank Essen.

**Methods** The amniotic tissue was retrieved from donor placentas acquired through elective c-section. Tissue preparation was performed according to standard operation procedures of the Cornea Bank Essen. Briefly, the tissue is rinsed with sterile balanced salt solution (BSS) and decontaminated with BSS containing anti-infectives. Preservation included the application of a cryopreservation solution containing anti-infectives and glycerin. The tissue is stored at a temperature of -80°C. Screening for microbial contamination of amniotic tissue in its pre- and post decontamination status is part of the process.

In this study, data from 107 placentas prepared in the eye bank were retrospectively evaluated for the microbiological status to determine the efficacy of the procedure.

**Results** Out of the fresh, non-preserved amniotic tissue, 53 were tested positive for microbial contamination. The most common species identified were C.acnes and Staphylococcus.
spp., which jointly comprised around 80% of the detected microorganisms. Others found in the remaining placentas were of the species: Acinetobacter, Bacillus spp., Faklmania, Lactobacillus, Rothia, Micrococcus, Penicillium,Ralstonia, Streptococcus and non-specific aerobic sporulating bacteria.

In contrast, 8 samples of the decontaminated cryopreserved tissue were tested positive for microorganisms with 4 placentas inhabited by C.acnes, 2 by Bacillus spp. while the remaining consisting each of the species Staphyloccocus and Ralstonia.

Conclusion Overall, the decontamination measures applied during the preparation of the amniotic tissue can be regarded as effective. We found a significant reduction of the number of microorganisms detected in the amniotic tissue following antibiotic administration.

However, some of the remaining species identified in the processed samples may be considered as contamination during the preparation and testing procedures.

For instance, C.acnes can be considered a result of secondary contamination due to incorrect handling. Species such as Bacillus most likely managed to endure the decontamination process owing to its natural resilience against harsh circumstances.

**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 from two post-mortem SARS-CoV-2 positive donors.

**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, RNAseP 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 threshold 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.

**Purpose** We evaluated the suitability of 2% human platelet lysate (2%HPL) to replace 2% fetal bovine serum containing medium (2%FBS) for the xeno-free organ culture of human donor corneas.

**Methods** Human corneas unsuitable for transplantation from 16 human donors (age 69.3±15.7 years) were collected 38.5±17.1 hours after death. They were first cultured in 2%FBS containing medium for 3 days (time point TP1), then evaluated by phase contrast microscopy (endothelial cell density (ECD)) and cell morphology. Following an additional 25-days culture period (time point TP2) in either 2%FBS or 2%HPL medium the pairs were again compared by phase contrast microscopy (ECM and morphology), stroma and Descemet membrane/endothelium (DmE) were processed for next generation sequencing (NGS).

**Results** ECD did not differ between the 2%HPL and 2%FBS group at TP1 (p=0.87). At TP2 the ECD was higher in the 2%HPL group (2179±288cells/mm2) compared to 2%FBS (2113±321cells/mm2; p=0.03), and endothelial cell loss was lower (ECL hPL=-0.7% vs. FBS=-3.8%; p=0.01). There were no significant differences in cell morphology, neither between TP1 and 2 nor between 2%HPL and 2%FBS. ECD of infected donors showed an increased expression of 1644 genes in endothelial and 217 genes in stromal cells. 2%HPL led to the upregulation of cytostatic, anti-inflammatory and anti-fibrotic genes (e.g. HMOX1, SERPINE1, ANGPTL4, LEFTY2, GADD45B, PLIN2, PTX3, GFRA1/2) and the downregulation of pro-inflammatory/apoptotic genes (e.g. CXCL14, SIK1B, PLK5, PPP2R3B, SLURP1, FABP5, MAL, GATA3).

**Conclusion** 2%HPL is a suitable xeno-free substitution for 2% FBS in human cornea organ culture, inducing less ECL and potentially beneficial alterations in gene expression.