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Paper Poster Session III

Molecular diagnostics and epidemiology of viral infections

Occurrence of viral DNA in paired samples of corneal rim and cornea preservation fluid

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Objectives: In scientific literature – apart from single publications – there is a lack of data on occurrence of viruses in corneas of donors and the risk of their transmission to recipients. Almost all analyses of infectious complications after corneal transplantation pertain to infections caused by bacteria or fungi.

Methods: The study comprised 57 paired samples, consisting of a fragment of corneal tissue remaining after its trepanation for transplantation surgery and a sample of cornea preservation fluid. Real time PCR technique was used to detect herpesvirus DNA (HHV-1 and HHV-2), as well as adenovirus DNA.

Results: Among 57 cornea transplant recipients there were 26 women (45.6%) and 31 men (54.4%). The mean age of recipients was 60.6 years. The presence of herpesvirus or adenovirus DNA was detected in 4 samples, including in 1 case both samples of cornea and its preservation fluid. Viral DNA was present in 3 corneas – HHV-1 DNA in 1 sample (1.8%) and adenovirus DNA in 2 samples (3.5%). In total, positive results were obtained in 3/57 (5.3%) paired samples. The HHV-1 genome was detected both in the fragment of cornea, as well as in its preservation fluid. No HHV-2 DNA was detected in the analysed samples. In the case of adenoviral DNA, it was detected only in corneal tissue samples, while the corresponding samples of preservation fluid were negative.

Analysis of medical records of 2 corneal transplant recipients – who received corneas, which were later found to contain adenoviral DNA – did not reveal any surgical site infection of viral etiology within 1 year after surgery. The cornea, in which HHV-1 DNA was detected both in the donor cornea rim as well as in its preservation fluid, was transplanted to a woman who underwent second surgery of this type due to corneal perforation 2 months after the first surgery.

Conlusion: 1. The presence of viral DNA was detected in 5.3% of paired samples. 2. Adenoviruses may be more prevalent in donor corneas than herpesviruses HHV-1 and HHV-2. 3. Virological testing of corneas for transplantation should be considered, particularly in the case of donors with risk factors for herpesvirus and adenovirus reactivation.