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Abstract (poster session)

Multiplex detection of herpesviruses in aqueous fluid using the “stair primers” polymerase chain reaction (PCR) methodology

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Objectives: Herpesviruses are involved in the pathogenesis of many ocular diseases including atypical keratitis, iridocyclitis and intra-ocular inflammations which often present with overlapping clinical manifestations misleading the diagnosis. Molecular techniques are most useful in such instances for an accurate and rapid diagnosis since conventional methods are less sensitive. A multiplex polymerase chain reaction (PCR) assay was used for the simultaneous detection of the six most frequent herpesviruses in aqueous fluid from patients with active ocular infections and the results obtained was correlated with clinical data. **Methods:** One hundred seventy five (175) aqueous fluid from consecutive adult patients with hypertensive iridocyclitis, retinitis and uveitis were analysed using a commercialized multiplex PCR methodology which is based on “stair primer” technique. The PCR assay enabled simultaneous amplification of the six main human herpesviruses: herpes simplex virus 1 and 2 (HSV-1 and HSV-2), varicella-zoster virus (VZV), cytomegalovirus (CMV), Epstein-Barr virus (EBV) and human herpesvirus 6 (HHV-6). **Results:** Herpesviruses DNA was identified in aqueous fluid of 12% (21/175) of suspected patients: HSV-1 was detected in 14, VZV in 6 and HSV-2 in one patient with clinical signs of ocular inflammation. No sample was positive for CMV, EBV and HHV-6 DNA or more than one herpesvirus. Seventeen out of 21 patients (81%) with detectable herpesviruses DNA experienced as uveitis. HSV-1 and VZV intraocular infections presented in their majority (86% and 67% respectively) as hypertensive iridocyclitis along with iris alteration. In patients with acute retinal necrosis syndrome (ARNS), VZV was detected in aqueous tap in 2 cases (50%), HSV-1 in 1 case and HSV-2 in 1 case. **Conclusion:** It is concluded that the “stair primers” multiplex PCR method provides an effective means for detecting herpesviruses in aqueous fluid. It can be used for sensitive, rapid and specific detection of herpesviruses DNA and is a powerful confirmatory and supplemental tool for diagnosis of herpetic ocular infections-especially in difficult cases as hypertensive iridocyclitis or ARNS-in addition to clinical diagnosis.