

Viral infections of the posterior segment of eye: What is the role of the Epstein Barr virus?

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Abstract

Background: The aim of this study is identifying the most representative pathogens of the infections of the posterior segment of eye and verifying the correlation between the clinical diagnosis and the laboratory diagnosis. Moreover, another aim is the verification of the role of Epstein Barr virus that is often in association with other pathogens. **Methods and findings:** In this study 35 cases of patients with suspected viral infections of the posterior segment of eye are presented. Among these, 18 were found positive for a microorganism with 22 selected positive plating tests because 1 patient was tested 2 times and in 3 patients were found more than a virus. The analysis was performed in polymerase chain reaction real time. Analyzed viruses, all of the Herpesviridae family, are: Varicella Zooster (VZ) 7, Herpes Simplex ½ (HSV) 4, Epstein Bar virus (EBV) 5, Citomegalovirus (CMV) 2. In addition, 4 *Toxoplasma gondii* (TG) were found. Epstein Barr Virus was found 2 times in association with *Toxoplasma gondii*, once with Varicella Zooster. **Conclusions:** The pathogenic role of EBV remains uncertain. There is a correlation between the clinical diagnosis and virus isolated. The laboratory diagnosis is important for choice of therapy.

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Introduction

There are few studies that appraise the prevalence of the Herpesviridae in the infection of the back segment of eye [1,2]. There are more papers of single cases with particular characteristics [3-6]. Our study would want to be a first attempt to put in correlation clinical diagnosis and viral infections. Furthermore, this study is an attempt to clarify the position of the EBV [7,8], virus that many oculists consider not pathogen when it is in association with other pathogens and mostly with TG.

Methods

We report data from 35 patients, 19 males (54.2%) and 16 females (45.8%), aged between 16 and 86 years (the average is of 54.4 years) admitted at the Ophthalmic Hospital (Turin-Italy) in the last two years with suspected viral or toxoplasmic infections of the posterior segments of eye. The Herpesviridae and *Toxoplasma gondii* were identified with polymerase chain reaction real time in aqueous and vitreous humor (Rotor-Gene Corbett research and Techno Genetics reagents). One patient was tested 2 times. Clinical diagnosis were retinitis or uveitis.

Results

Among the 35 patients 18 (51.4%) were positive for at least one virus or toxoplasma.

Instead, selected positive plating tests were 22 as in 3 patients was found the association of parasite and virus: 2 cases of TG + EBV, and 1 case of virus + virus VZ and EBV. In addition, 1 patient was tested 2 times.

The distribution of viruses and parasite is as follow:

- VZ: 7 (32%) with clinical suspicion: Acute Necrotic Retinitis (ANR), Panuveitis
- HSV: 4 (18%) with clinical suspicion: Uveitis, Retinal Vasculitis
- EBV: 5 (23%) of which 2 in association with TG and 1 with VZ with diagnosis of Retinitis those in association with TG, and ARN that in association with VZ
- CMV: 2 (9%) With clinical suspicion: Retinal Vasculitis and Granoulomatouse Panuveitis
- TG: 4 (18%) of which 2 in same patient (in a collecting in association with EBV) and 1 in association with EBV in another patient. Clinical suspicions: ARN, retinitis.

Discussion

From the data, some observations emerge:

1. It seems to exist a certain correlation between clinical suspect and diagnosis of laboratory; in particular, the diagnosis of ARN primarily correspond to the infections from VZ.
2. the diagnosis of the deep infections of the eye, even if predominantly clinical, must be confirmed by laboratory tests for a correct therapeutic choice in all the uncertain cases
3. our observations open a discussion on the role of the virus EBV often considered by the oculists not to be the forehand responsible of the illness.

The inflammatory lesions of the back segment can be due to viral infections, parasitic infections or to autoimmune pathogenesis and therefore it is important to define the correct diagnosis for a correct therapy.

The two cases of EBV in association with TG have been followed. In the first case the antiviral therapy in association with anti-parasitic has allowed to make the improvement of the clinical picture, that did not have tendency to improve with the only anti-parasitic therapy. In this case EBV was jointly liable of the illness.

In the second case a weak viral position has also been found again in the blood and this has brought to define EBV as reactivated and not as pathogen.

These data must naturally be confirmed by further studies. However, it is fundamental the collaboration between microbiologist and clinician in the definition of all the serious cases to get the best therapeutic results.

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