



Triple Infection by Betaherpesviruses (HCMV, HHV-6 and HHV-7) in a Child with Acute Liver Failure

Jéssica Vasques Raposo¹ · Natália Spitz¹ · Damião Carlos Moraes dos Santos² · Marcelo Alves Pinto³ · Vanessa Salete de Paula¹

Received: 23 August 2020 / Accepted: 17 December 2020 / Published online: 9 January 2021
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To the Editor: We report here the first description of a triple infection by betaherpesvirus before liver transplantation. A 1-year-old female patient developed acute liver failure (ALF) of unknown etiology. The patient had ALF Grade II encephalopathy and coagulopathy with an international normalized ratio (INR) of 4.2. Enzymes aspartate aminotransferase (AST) and alanine aminotransferase (ALT), alkaline phosphatase (ALP) and total Bilirubin (TB) were increased, hematologic analysis showed severe anemia. The patient had no history of hepatotoxic drugs and symptoms of childhood exanthematic disease. The patient underwent a liver transplantation and peripheral blood and liver explant samples were collected. After 47 d of transplant procedure, the patient died. The etiology investigation of the ALF was performed by polymerase chain reaction (PCR) for virus hepatitis (A, B, C, and E) and Epstein–Barr virus. The sample was positive to Pan PCR herpesviruses (*DPOL* gene). The infection was confirmed by quantitative PCR (qPCR) and nested PCR specific for each virus detected. The regions UL54, U56 and U37 were targeted to detect and amplify human cytomegalovirus (HCMV), human herpes virus (HHV)-6 A/B and HHV-7 respectively [1]. The triple infection was detected and confirmed by sequencing and viral load of 4×10^3 copies/mL, 7×10^5 copies/mL and 1×10^5 copies/mL to HCMV, HHV-6 and HHV-7 respectively. The etiology of ALF cases is often unknown, and some of these cases are not related to classical etiologies. The HCMV activation is more frequent after liver transplantation than before

liver transplantation [2]. The HCMV positivity in the pre-transplant period, found in this study, also raise the hypothesis that viral activation might begin before liver transplantation. Several cases of ALF were associated with primary HHV-6 infection, mainly in infants and HHV-6B infection had yet identified in a liver sample [3, 4]. The indirect effects potentially attributed to HHV-7 have been less characterized, the reactivation of HHV-7 may increase the risk of HCMV infection [2, 5]. Betaherpesviruses can be associated with ALF. Therefore, after the exclusion of other etiologies. It should be included in the diagnostic differential to start therapy and even to avoid death in cases without defined etiology.

Acknowledgments We gratefully acknowledge the kind assistance of the staff at the hepatic transplantation service at the Federal Hospital of Bonsucesso, Rio de Janeiro, Brazil.

Funding This study was financed by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001, Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ) and Oswaldo Cruz Institute who approved the project and funded the research with scholarship and grants.

Compliance with Ethical Standards

Ethics Committee Approval Ethical permission for the collection and testing of samples was provided by the FIOCRUZ Ethical Committee (440.614).

Conflict of Interest None.

✉ Vanessa Salete de Paula
vdepaula@ioc.fiocruz.br

¹ Laboratory of Molecular Virology, Oswaldo Cruz Institute/Fiocruz, Oswaldo Cruz Foundation, IOC, Av. Brasil 4365-Manguinhos, Pav. Helio e Peggy Pereira B10, Rio de Janeiro 21040-360, Brazil

² Medical School, Estácio de Sá University, Rio de Janeiro, Brazil

³ Laboratory of Technological Development in Virology, Oswaldo Cruz Institute/Fiocruz, Rio de Janeiro, Brazil

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