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Quantitative analysis of human herpes virus 6 DNA in patients treated for acute leukemia

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Viral infections in hematological patients may result from reactivation of latent infection or, rarely, from acquisition of a new infection. It is extremely important to identify which patients or which treatment strategies are particularly at risk of viral infections to choose the suitable therapeutic procedure. Both acute lymphoblastic leukemia and acute myeloid leukemia patients receiving induction or consolidation chemotherapy are at the highest risk of viral infection. Thus, screening of patients with hematological malignancies for HHV-6 might be considered mandatory. The aim of this study is to evaluate a possible association between Human Herpesvirus-6 (HHV-6) infection and acute leukemia in adults after receiving chemotherapy treatment for acute leukemia. The patients were divided into two main groups according to the type of leukemia: Group I; 36 patients with newly diagnosed acute myeloid leukemia (AML) and Group II; 27 patients with newly diagnosed acute lymphoblastic leukemia (ALL); 21 patients with B-ALL and 6 patients with T-ALL. All 63 studied adult patients with newly diagnosed acute leukemia were subjected to history taking, complete clinical examination for the presence of organomegaly and routine laboratory investigations. Peripheral blood samples were collected from all patients for quantitative determination of HHV6 viral load by Taqman probe technique (real time PCR) at day 0 and day 100 of induction chemotherapy. The results argued against an etiological relationship between HHV-6 infection and the genesis of acute leukemia in adults, however, it supports the hypothesis of viral latency and the possibility of virus reactivation in immunocompromised hosts. The possible presence of HHV-6 as an associated or a putative causative agent in leukemia should however be considered. The following recommendations include: screening of patients with hematological malignancies for HHV-6 might be considered among the routine initial laboratory work-up.

Recent Publications

1. Agut H, Bonnafous P, Gautheret Dejean A Laboratory and clinical aspects of human herpesvirus 6 infections. Clin. Microbiol. Rev. 28(2): 313-335.
2. Smith C, Khanna R (2013) Immune regulation of human herpesviruses and its implications for human transplantation. Am. J Transplant. 13(s3): 9-23.
3. Becerra A, Gibson L, Stern L J, Calvo Calle J M (2014) Immune response to HHV-6 and implications for immunotherapy. Curr Opin Virol. 9: 154-161.
4. Yip C C Y, Sridhar S, Cheng A K W, Fung A M Y, Cheng V C C, Chan K H et al. (2017) Comparative evaluation of a laboratory developed real-time PCR assay and the RealStar® HHV-6 PCR Kit for quantitative detection of human herpesvirus 6. J Virol. Methods. 246: 112-116.
5. Inazawa N, Hori T, Yamamoto M, Hatakeyama N, Yoto Y et al. HHV-6 encephalitis may complicate the early phase after allogeneic hematopoietic stem cell transplantation: detection by qualitative multiplex PCR and subsequent quantitative real-time PCR. J Med. Virol. 88(2): 319-323.

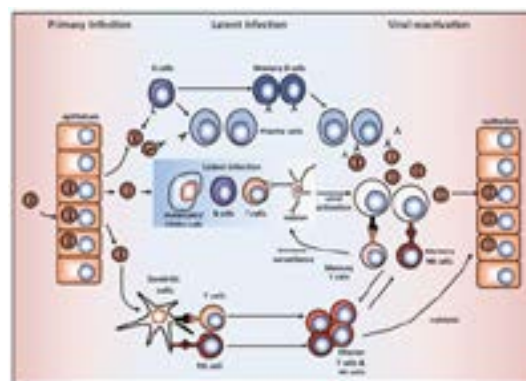


Figure (1): Immune control of herpesvirus infection.

Biography

Radwa H Ghoraba is a Pharmacist, graduated from Faculty of Pharmacy and Drug Manufacturing, Pharos University 2012, Alexandria, Egypt. She has a Master's Degree in Diagnostic and Molecular Microbiology, Medical Research Institute (MRI), Alexandria University 2017, Egypt. Her involvement in research has given her first-hand exposure to the process of active scientific research, resulted in incredible research experiences, and instilled in her a passion for science and exploration. She is interested in improving public health through research.

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