DETECTION OF HUMAN HERPESVIRUS 8 IN QUEENSLAND AND VICTORIA IN HIV-POSITIVE AND HIV-NEGATIVE PATIENTS

Speicher DJ1,2, Lam A3, McLean CA4, Johnson NW1,2

1 School of Dentistry and Oral Health, Griffith University, Southport, Australia.
2 Griffith Health Institute, Griffith University, Australia
3 School of Medicine, Griffith University, Southport, Australia
4 The Alfred Hospital, Prahran, Melbourne, Victoria

Introduction: HHV-8, regarded as the aetiological agent of Kaposi’s sarcoma (KS), HHV-8-associated multicentric Castleman’s disease (HHV-8-MCD), and primary effusion lymphoma (PEL) is uncharacterized in Australia due to the use of HAART greatly reducing the incidence of KS as an AIDS-defining condition. This study attempts to characterize HHV-8 in Australia by examining KS and MCD biopsies from both HIV-positive and –negative patients in Queensland and Victoria and determine their associated subtype.

Methods: 44 biopsies from 38 patients (males:females, 37:1) with a mean age of 49.1 years (28.2-88.6 years) with KS or MCD diagnosed between 2004 and 2009 were examined by haematoxylin and eosin (H&E) staining and immunohistochemistry (IHC) targeting the HHV-8 LANA-1 protein (NCL-HHV8-LNA; Novacastra). Positive controls were sections from embedded BCBL-1 cell lines. Negative controls from 3 different HHV-8-negative biopsies. Confirmation of HHV-8 IHC staining was sought by quantitative polymerase chain reaction (qPCR) targeting ORF73 and ORF26 and HHV-8 subtyping based on sequencing ORFK1.

Results: HHV-8 was detected in two HIV-negative elderly males (78 and 88 years) with classic KS nodules on lower abdomen and left thumb. Biopsies of AIDS-KS lesions positive for HHV-8 were visible at all KS stages (patch to nodule) and taken from the epidermis (n=20), duodenum (n=2), stomach (n=2), and buccal mucosa (n=1). IHC on 13 lymph nodes from HIV-positive males confirmed KS (n=1), MCD (n=5) or both MCD and KS in the same lesion (n=3). qPCR for HHV-8 ORF73 and ORF26 was confirmational in tissue positive by IHC. In two early KS lesions with both negative and weak IHC staining PCR was weakly positive and was positive in an MCD lesion that revealed negative IHC staining. In the remainder of the IHC negative lesions PCR was also negative. HHV-8 isolates sequenced thus far have revealed the presence of HHV-8 subtype A.

Conclusions: HHV-8 was detected in KS and MCD biopsies in Australia by IHC and confirmed by PCR. Lesions appear to be PCR positive before IHC positive possibly due to the presence of replicating not latent HHV-8. HHV-8 subtype A has been detected thus far possibly because the isolates sequenced are from Caucasian HIV-positive males.