

MEETING ABSTRACTS

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Relationship between salivary shedding and seropositivity for Kaposi's sarcoma-associated herpesvirus (KSHV) and Epstein-Barr virus (EBV) among South African children and adults: insights on why EBV infection is ubiquitous and KSHV is not

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Background

In a recent population-based study of South African children, we found KSHV seroprevalence in children to be low (7%) and not associated with age, but EBV infection was nearly ubiquitous (96%). While saliva is known to be the main conduit for transmission of both KSHV and EBV, little is known about the comparative patterns of KSHV and EBV salivary shedding in Africa. To address whether differences in salivary shedding may account for the difference in seroprevalence, we assessed KSHV and EBV shedding in children and their caregivers in South Africa.

Methods

Participants were children ages 1.5 to 8.9 years and their primary female caregivers in a population-based sample in a rural and an urban community in KwaZulu-Natal Province, South Africa. KSHV antibody testing utilized a previously established algorithm featuring two enzyme immunoassays and one indirect immunofluorescence assay. Viral DNA in unstimulated saliva was detected by PCR targeting ORF25 for KSHV and the EBNA gene for EBV.

Results

Among 458 children, 33 (7%) were KSHV antibody-positive, of whom 30 had saliva available for testing. Of these 30, 70% were female, and median age was 4.3 years (IQR 2.5-8.2). Among the female caregivers, 84 (17%) were KSHV antibody-positive, of whom 80 had saliva available for testing. Of these 80, the median age was 34 years (IQR 26-51). Among KSHV-seropositive individuals, KSHV DNA was detected in saliva of 1/30 children (3.3%) and 9/80 (11.3%) adults ($p=0.20$). KSHV DNA was not detected in the saliva of any KSHV antibody-negative or -equivocal individual. EBV DNA was detected in the saliva of 83% (25/30) of children ($p<0.001$ compared to KSHV) and 60% (48/80) of adults ($p<0.001$ compared to KSHV). There was no association between viral shedding of EBV and KSHV in saliva ($p=0.83$). Examination of the determinants of salivary shedding found that both younger age (odds ratio=0.97 per year of age, $p=0.01$) and HIV infection (OR=4.0, $p=0.01$) were independently associated with EBV shedding but not with KSHV shedding.

Conclusions

EBV is present in saliva substantially more often than KSHV among KSHV/EBV-infected South African children and adults. The much higher prevalence of EBV in saliva may, at least in part, explain why EBV infection is

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ubiquitous and KSHV is not. Attention next needs to turn to comparative mechanisms of host control of viral salivary shedding. The effect of HIV on herpesvirus salivary shedding suggests yet another reason why wide-spread therapy of HIV infection would be useful.

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