INFECTIOUS AGENTS AND CANCER

MEETING ABSTRACTS Open Access

Preventing HHV-8 transmission and Kaposi's sarcoma (KS) risk prediction and prognostication in resource-poor countries

Amos Mwakigonja[1,2*], Pawan Pyakurel[2], Fatemeh Pak[2], Parviz Kokhaei[2], Peter Biberfeld[2], Ephata Kaaya[1,2]

From 12th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI)
Bethesda, MD, USA. 26-27 April, 2010

Background

Kaposi's sarcoma (KS) is the now most important AIDS-defining malignancy in sub-Saharan Africa including Tanzania, and human herpesvirus-8 (HHV-8) is necessary for its development. Detecting HHV-8 in biopsies and its antibodies in sera allows the confirmation of KS diagnosis and predicts its risk among blood transfusion (BT) and organ transplant recipients but this is not yet routine in most African countries. This impedes the provision of safe BT/organ donation as well as KS prevention. A cost-effective HHV-8 serological assay for routine use will help improve blood/organ safety and lower iatrogenic KS incidence in resource-poor countries.

Materials and methods

Consecutive archival (1990-2001) biopsies and their corresponding sera from African patients with KS, non-KS tumors, and non-neoplastic (reactive) lesions at Muhimbili National Hospital (MNH) were evaluated by histopathology, immunohistochemistry (IHC) for the HHV-8 latency-associated nuclear antigen (LANA), and serology for HIV and HHV-8 (ELISA) as well as for HHV-8 [immunofluorescence (IFA)].

Results

A total of 184 biopsies and corresponding sera from 120 KS (65%), 24 non-KS tumors (13%), and 40 non-neoplastic lesions (22%) were evaluated. Most sera (89.0%, 164/184) were HHV-8+ by either IFA or ELISA ($p<0.001$, highly statistically significant, Chi^2 Test) and as expected the majority (68.3%, 112/164) were KS. HHV-8 serology tests by IFA and ELISA were mostly (92.4%, 73/79) concordant. Sensitivity, positive predictive value (PPV), and specificity were 98.6%, 93.5%, and 16.7% for IFA and 93.5%, 98.6%, and 50.0% for ELISA, respectively. All patients with early-stage KS were HHV-8 seropositive but two late-stage cases were seronegative despite LANA expression in their corresponding biopsies.

Conclusions

HHV-8 frequency at MNH appears to be very high and necessitates routine screening of blood/organ donors and recipients to prevent viral transmission and lower risk of iatrogenic KS development. IFA and ELISA serology tests appeared highly concordant and ELISA showed higher PPV and specificity in detecting anti-HHV-8 antibodies. Thus ELISA might allow affordable HHV-8 screening in resource-poor countries like Tanzania, with most lacking the cell culture and fluorescence microscopy facilities needed in IFA. The apparent tissue (LANA)-serum HHV-8 antibodies discrepancy in late-stage KS suggests that serum HHV-8 might not be a good indicator of this tumor's development.

Acknowledgements

These studies were supported by Sida/SAREC of Sweden.
This article has been published as part of *Infectious Agents and Cancer* Volume 5 Supplement 1, 2010: Proceedings of the 12th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI). The full contents of the supplement are available online at http://www.biomedcentral.com/1750-9378/5?issue=S1.

*Correspondence: rodgeramos@yahoo.com
[1]Department of Pathology, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania
Full list of author information is available at the end of the article

Author details
[1]Department of Pathology, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania. [2]Department of Oncology-Pathology, Karolinska University Hospital Solna/Karolinska Institutet, Stockholm, Sweden.

Published: 11 October 2010

doi:10.1186/1750-9378-5-S1-A66
Cite this article as: Mwakigonja *et al.*: Preventing HHV-8 transmission and Kaposi's sarcoma (KS) risk prediction and prognostication in resource-poor countries. *Infectious Agents and Cancer* 2010 **5**(Suppl 1):A66.