To the Editor:

A novel herpesvirus-like DNA sequence has recently been identified in acquired immunodeficiency syndrome (AIDS)-associated and nonassociated Kaposi's sarcoma (KS), in human immunodeficiency virus-1 (HIV-1)-infected and uninfected subjects with multicentric Castleman's disease, and in HIV-1-related body-cavity-based lymphomas. These findings have raised the possibility that a new herpesvirus-related infectious agent is involved in the pathogenesis of KS and some lymphoproliferative disorders. However, the presence of the KS herpesvirus-like (KSHV) sequence in peripheral blood mononuclear cells (PBMCs) has been poorly investigated, making it difficult to define the pattern of transmission of the putative new herpesvirus. To this end, we analyzed blood samples from 155 subjects for the presence of the KSHV sequence by using polymerase chain reaction (PCR) with the primer pair specific for the KS330 region of KSHV DNA.

The population analyzed included six different groups from central Italy: 24 HIV-1-infected homosexual men, 5 HIV-1-uninfected homosexual men, 17 HIV-1-infected heterosexual men, 42 HIV-1-uninfected heterosexual men, 25 HIV-1-infected women, and 42 HIV-1-uninfected women. Results are shown in Table 1. Three of the HIV-1-infected homosexual males developed KS. KSHV DNA was detected in the single sample tested from the first patient 2 years before development of KS. The second patient was shown to harbor the KSHV DNA only in the fourth of 6 PBMC samples analyzed, concomitant with the appearance of KS. The third patient did not harbor the KSHV sequence in any of the 4 samples tested, with KS oral lesions being detected only at the time of the first sampling. Also, the KS330 region sequence was not detected in any of the 11 paired plasma specimens obtained from the 3 KS patients. Serial blood samples were also obtained from 2 HIV-infected homosexual men without KS (7 and 8 samples, respectively). In both cases there was a temporal shift from KS330 PCR-positive to PCR-negative in PBMC samples, whereas the KSHV DNA sequence was not detected in any of the paired plasma samples. The failure to detect KSHV DNA in plasma samples of subjects whose PBMC are KSHV-positive is consistent with PBMC being latently infected by the putative new herpesvirus, as is well known for other human lymphotropic herpesviruses.

Overall, the presence of KSHV DNA in PBMC appeared to be associated with homosexuality in the male population examined (P = .006, Fisher exact test). The significantly higher prevalence of

Table 1. Detection of KSHV DNA in PBMC’s From HIV-1–Infected and Uninfected Subjects

<table>
<thead>
<tr>
<th>Group</th>
<th>KSHV-Positive Patients/Patients Tested (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIV-1- Infected</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Homosexual men</td>
<td>8/24 (33.3)</td>
</tr>
<tr>
<td>Heterosexual men</td>
<td>2/17 (11.8)</td>
</tr>
<tr>
<td>Women</td>
<td>0/25 (0.0)</td>
</tr>
</tbody>
</table>
| Total             | 10/66 (14.5)   | 1/89 (1.2)       | 11/155 (7.1)
KSHV DNA in the male compared with the female population and in HIV-1-infected compared with uninfected subjects clearly derived from such an association. Because few HIV-1-uninfected homosexual men were investigated, it remains to be established whether HIV-1 infection poses an additional risk over male homosexuality. The only 2 heterosexual subjects found to be KSHV-positive were intravenous drug abusers. Because a total of 39 drug abusers (20 men and 19 women) were included in the study population, this low prevalence (5.1%) does not appear to indicate a very efficient transmission of the putative herpes-like agent by sharing needles. The higher prevalence in the homosexual male population is consistent with the suggested association between the KSHV DNA sequence and KS, because KS is found predominantly in homosexual men. However, the presence of the KSHV DNA sequence in PBMCs does not appear to be sufficient for development of KS. Accordingly, a role for the related gamma herpesviruses (Epstein-Barr and herpesvirus saimiri) as cofactors in neoplastic processes is well established. Further epidemiologic studies and biologic and molecular characterization of the KS-associated herpes-like agent are essential to define the significance of the presence of KSHV DNA in PBMCs.

ACKNOWLEDGMENT

Supported by Grant No. 9302-10 from Progetto AIDS, Istituto Superiore di Sanità, Ministero della Sanità, Rome, Italy.

Angelo De Milito
Marinunzia Catucci
Giulietta Venturi
Laura Romano
Pier Egisto Valensin
Maurizio Zazzi
Sezione di Microbiologia
Dipartimento di Biologia Molecolare
Università di Siena

REFERENCES

Human immunodeficiency virus-1 infection, homosexuality, and Kaposi-associated herpes-like DNA in peripheral blood mononuclear cells [letter]

A De Milito, M Catucci, G Venturi, L Romano, PE Valensin, M Zazzi and P Almi