

MEETING ABSTRACTS

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DNA ploidy, cell proliferation, and HIV/EBV association in Tanzanian malignant lymphomas

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Background

Malignant lymphomas (ML) are increasingly important causes of morbidity and mortality in sub-Saharan Africa including Tanzania, possibly due to HIV and AIDS. However, the biological characterization ML including their HIV and Epstein-Barr virus (EBV) association as well as DLBCL subtypes in Tanzania is still sketchy. This prevents diagnostic/prognostic comparison as well as application of established therapeutic protocols.

Materials and methods

Selected archival, diagnostic ML biopsies (N=60) collected at Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania, between 1996 and 2006 and their corresponding clinical/histopathological notes were analyzed by histopathology; immunohistochemistry (IHC) using CD20, CD3, CD30, CD10, MUM1p, BCL-6, BCL-2, and Ki-67 cell markers; flow-cytometry (FC) for DNA ploidy; and in situ hybridization (ISH) (n=25) for EBV-encoded RNA (EBER). Available sera (N=35) were screened by ELISA for HIV antibodies.

Results

Out of the evaluated cases, 27 were diffuse large B-cell lymphoma (DLBCL) of which a slight majority (55.6%, n=15/27) had activated B cell-like (ABC) and 44.4% (12/27) had germinal center B cell-like (GCB) immunophenotype, although this was not statistically significant (p-value 0.547, Chi² Test). Overall, 40% (24/60) ML were aneuploid mostly (63.0%, 17/27) the DLBCL and T-cell lymphoma (TCL) [54.5%, 6/11] which differences were not statistically significant (p-value 0.06, Chi² Test. DNA index (DI) of FC-analyzed ML ranged from 1.103 to 2.407

(median=1.51) and most (75.0%) aneuploid cases showed high (>40%) cell proliferation by Ki-67 reactivity (p-value 0.031, statistically significant, Fisher's Exact Test). The majority (51.4%, 19/37) of EBER ISH analyzed lymphoma biopsies were positive (p-value 0.87, not statistically significant, Chi² Test). Of the serologically tested lymphomas 40.0% (14/35) were HIV positive, mostly with high (≥40.0%) Ki-67 reactivity [p-value=0.05, statistically significant, Pearson Correlation].

Conclusions

Lymphomas at MNH appear to have frequent aneuploidy and EBER positivity as well as high DNA indices and tumor proliferation (Ki-67). DLBCL phenotype heterogeneity was similar to that observed in other countries suggesting applicability of established intervention approaches. HIV was apparently associated with high lymphoma cell proliferation but extended studies are needed to clarify this.

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