HTLV Elite Controllers: A diagnostic challenge and a learning opportunity

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Background:
HTLV-1 diagnosis is based on screening test (ELISA, chemiluminescence) followed by confirmation using Western Blot (WB), LIA or PCR. Molecular test targeting HTLV-1 proviral genome has been increasingly used due to its lower cost. However, some HTLV-1 infected individuals may effectively control virus replication posing difficulties to the diagnosis of infection. We describe here the follow-up (FU) of a cohort of HTLV-1 elite controllers in the UK.

Methods:
Subjects were research consented patients from UK, with minimum 2 years FU, HTLV-1 DNA at least once but proviral load (PVL) never above 0.1% and minimum two time-points with HTLV-1 DNA not detected by both quantitative real time PCR (qPCR) and nested PCR in quadruplicate (nPCR). Chemiluminescence (Abbott, S/CO), WB and data on HTLV-1 PVL were analyzed.

Results:
Eleven patients fulfilled the criteria (median FU (range):8 years (2-17) and all were asymptomatic. All had S/CO higher than 4 being 65.6 (8.3-128). Seven had HTLV-1 infection confirmed by Western Blot, one was HTLV untyped, three had an indeterminate WB. The frequency of reactivity for each WB protein was: gd21=100%, p19 =91%, p28 and p26 =82%, p36 =73%, rgp46-I =64%, p24 =54%, p53 =45%, gp46 =27%. One patient also had rgp46-II trace. Eight patients had 2-7 consecutive negative molecular tests during FU, one testing negative by both qPCR and nPCR 7 times during 9 years' FU, despite earlier and later positive results.

Conclusion:
We propose criteria for the definition of HTLV-1 elite controllers. From a diagnostic perspective they present a challenge as molecular tests may be intermittently negative. From a clinical perspective, it is plausible that these patients have low risk of disease progression and HTLV-1 transmission and that their immune response to HTLV-1 may provide invaluable insights into vaccine development.

Disclosure of Interest Statement:
Nothing to disclose.