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Correspondence of Neutralizing Humoral Immunity and CD4 T Cell Responses in Long Recovered S udan VirusSurvivors.

Sobarzo A, Stonier SW, Herbert AS, Ochayon DE, Kuehne AI, Eskira Y, Fedida-Metula S, Tali N, Lewis EC, Egesa M, Cose S, Lutwama JJ, Yavelsky V, Dye JM, Lobel L. *Viruses. 2016 May 11;8(5). pii: E133. doi: 10.3390/v8050133.*

Abstract

Robust humoral and cellular immunity are critical for survival in humans during an ebolavirus infection. However, the interplay between these two arms of immunity is poorly understood. To address this, we examined residual immune responses in survivors of the Sudan virus (SUDV) outbreak in Gulu, Uganda (2000-2001). Cytokine and chemokine expression levels in SUDV stimulated whole blood cultures were assessed by multiplex ELISA and flow cytometry. Antibody and corresponding neutralization titers were also determined. Flow cytometry and multiplex ELISA results demonstrated significantly higher levels of cytokine and chemokine responses in survivors with serological neutralizing activity. This correspondence was not detected in survivors with serum reactivity to SUDV but without neutralization activity. This previously undefined relationship between memory CD4 T cell responses and serological neutralizing capacity in SUDV survivors is key for understanding long lasting immunity in survivors of filovirus infections.

Baseline Inflammatory Biomarkers Identify Subgroups of HIV-Infected African Children With DifferingResponses to Antiretroviral Therapy.

Prendergast AJ, Szubert AJ, Berejena C, Pimundu G, Pala P, Shonhai A, Musiime V, Bwakura-Dangarembizi M, Poulsom H, Hunter P, Musoke P, Kihembo M, Munderi P, Gibb DM, Spyer M, Walker AS, Klein N; and the ARROW Trial Team. *J Infect Dis. 2016 May 18. pii: jiw148. [Epub ahead of print]*

Abstract

BACKGROUND: Identifying determinants of morbidity and mortality may help target future interventions for human immunodeficiency virus (HIV)-infected children.

METHODS: $CD4^+$ T-cell count, HIV viral load, and levels of biomarkers (C-reactive protein, tumor necrosis factor α [TNF-α], interleukin 6 [IL-6], and soluble CD14) and interleukin 7 were measured at antiretroviral therapy (ART) initiation in the ARROW trial (case-cohort design). Cases were individuals who died, had new or recurrent World Health Organization clinical stage 4 events, or had poor immunological response to ART.

RESULTS: There were 115 cases (54 died, 45 had World Health Organization clinical stage 4 events, and 49 had poor immunological response) and 485 controls. Before ART initiation, the median ages of cases and controls were 8.2 years (interquartile range [IQR], 4.4-11.4 years) and 5.8 years (IQR, 2.3-9.3 years), respectively, and the median percentages of lymphocytes expressing CD4 were 4% (IQR, 1%-9%) and 13% (IQR, 8%-18%), respectively. In multivariable logistic regression, cases had lower age-associated $CD4^+$ T-cell count ratio (calculated as the ratio of the subject's $CD4^+$ T-cell count to the count expected in healthy individuals of the same age; $P < .0001$) and higher IL-6 level ($P = .002$) than controls. Clustering biomarkers and age-associated $CD4^+$ and $CD8^+$ T-cell count ratios identified 4 groups of children. Group 1 had the highest frequency of cases (41% cases; 16% died) and profound immunosuppression; group 2 had similar mortality (23% cases; 15% died), but children were younger, with less profound immunosuppression and high levels of inflammatory biomarkers and malnutrition; group 3 comprised young children with moderate immunosuppression, high TNF-α levels, and high age-associated $CD8^+$ T-cell count ratios but lower frequencies of events (12% cases; 7% died); and group 4 comprised older children with low inflammatory biomarker levels, lower HIV viral loads, and good clinical outcomes (11% cases; 5% died).

Chronic disease, risk factors and disability in adults aged 50 and above living with and without HIV: findings from the Wellbeing of Older People Study in Uganda.

Mugisha JO, Schatz EJ, Randell M, Kuteesa M, Kowal P, Negin J, Seeley J. *Glob Health Action. 2016 May 24; 9:31098. doi: 10.3402/gha.v9.31098. eCollection 2016.*

Abstract

BACKGROUND: Data on the prevalence of chronic conditions, their risk factors, and their associations with disability in older people living with and without HIV are scarce in sub-Saharan Africa.

OBJECTIVES: In older people living with and without HIV in sub-Saharan Africa: 1) to describe the prevalence of chronic conditions and their risk factors and 2) to draw attention to associations between chronic conditions and disability.

METHODS: Cross-sectional individual-level survey data from people aged 50 years and over living with and without HIV were analyzed from three study sites in Uganda. Diagnoses of chronic conditions were made through self-report, and disability was determined using the WHO Disability Assessment Schedule (WHODAS). We used ordered logistic regression and calculated predicted probabilities to show differences in the prevalence of multiple chronic conditions across HIV status, age groups, and locality. We used linear regression to determine associations between chronic conditions and the WHODAS.

RESULTS: In total, 471 participants were surveyed; about half the respondents were living with HIV. The prevalence of chronic obstructive pulmonary disease and eye problems (except for those aged 60-69 years) was higher in the HIV-positive participants and increased with age. The prevalence of diabetes and angina was higher in HIV-negative participants. The odds of having one or more compared with no chronic conditions were higher in women (OR 1.6, 95% CI 1.1-2.3) and in those aged 70 years and above (OR 2.1, 95% CI 1.2-3.6). Sleep problems (coefficient 14.2, 95% CI 7.3-

21.0) and depression (coefficient 9.4, 95% CI 1.2-17.0) were strongly associated with higher disability scores.

CONCLUSION: Chronic conditions are common in older adults and affect their functioning. Many of these conditions are not currently addressed by health services in Uganda. There is a need to revise health care policy and practice in Uganda to consider the health needs of older people, particularly as the numbers of people living into older age with HIV and other chronic conditions are increasing.
