

Phase angle from bioelectrical impedance analysis remains an independent predictive marker in HIV-infected patients in the era of highly active antiretroviral treatment

Achim Schwenk, Alexander Beisenherz, Katja Römer, Gisela Kremer, Bernd Salzberger and Marinos Elia

¹ From the Klinik I für Innere Medizin der Universität zu Köln, Cologne, Germany, and Addenbrooke's Hospital, Cambridge, United Kingdom.

² Address reprint requests to A Schwenk, Department of Infectious Disease, St George's Hospital Medical School, Cranmer Terrace, London SW17 0RE, United Kingdom. E-mail: a.schwenk@sghms.ac.uk.

BACKGROUND:

Highly active antiretroviral treatment (HAART) reduces the risk of wasting in HIV infection and may alter the prognostic weight of wasting. **The phase angle from bioelectrical impedance analysis (BIA) can be interpreted as a surrogate marker for the catabolic reaction to chronic HIV infection and opportunistic disease.**

OBJECTIVE:

Our objective was to assess the prognostic ability of the phase angle in HIV-infected patients in the era of HAART.

DESIGN:

Two cross-sectional observation studies were conducted in 1996 and 1997 at a German university outpatient HIV clinic. In the 1996 and 1997 cohorts, HAART was prescribed to 17 of 212 and 168 of 257 patients at baseline and to 179 of 212 and 234 of 257 patients during observation, respectively. Whole-body BIA was assessed at 50 KHz. Time to clinical progression and survival were calculated by using Cox proportional hazard models with time-dependent covariates. Median observation times were 1000 and 515 d for the 1996 and 1997 cohorts, respectively.

RESULTS:

Higher phase angle was associated with a lower relative mortality risk, adjusted for viral load and CD4⁺ cell count, of 0.49 (95% CI: 0.30, 0.81) per degree in 1996 and of 0.33 (95% CI: 0.18, 0.61) in 1997. The influence of phase angle on time to clinical progression, adjusted for viral load and CD4⁺ cell count, was not significant in 1996 but the relative risk was 0.58 (0.36, 0.83) in 1997.

CONCLUSION:

Despite the favorable effects of HAART on the nutritional status of HIV-infected persons, **low phase angle remains an independent adverse prognostic marker of clinical progression and survival.**