

# **MORTALITY OF 5-YEAR TIME-AVERAGED LOW SERUM CALCIUM <8.5 MG/DL IN SUBGROUPS OF HEMODIALYSIS (HD) PATIENTS**

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Low serum calcium levels may be associated with cardiovascular, neurological and other adverse outcomes. We examined these associations by accounting for all monthly measured serum calcium levels up to the time of death or censorship in different subgroups of a large and contemporary cohort of 151,555 HD patients in all legacy DaVita dialysis clinics during 7/2001-6/2006. All monthly measured (and albumin adjusted) serum calcium levels were averaged into one single value per patient during the entire follow-up time, i.e., up to 5 years. Patients were  $61.1 \pm 15.6$  years old and included 45% women, 31% Blacks, 14% Hispanics and 43% diabetics. In multivariate Cox models adjusted for case-mix and malnutrition-inflammation cachexia syndrome (MICS)

(BMI, serum creatinine, albumin, TIBC, WBC, phos., PTH, lymphocyte percentage and blood hemoglobin), albumin adjusted serum calcium <8.5 mg/dL (compared to 8.5 to 10.2 mg/dL) associated with 20% increased death risk (hazard ratio: 1.20, 95% CI: 1.12-1.27). The increased death risk of hypocalcemia was consistent across almost all subgroups

(see Figure). Hence, in HD patients, time-averaged hypocalcemia (<8.5 mg/dL), when compared to normo-calcemia (8.5-10.2 mg/dL), is associated with increased mortality.

