

**Skin autofluorescence, a measure of cumulative metabolic stress and advanced glycation end products, predicts mortality in hemodialysis patients.**

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Tissue advanced glycation end products (AGE) are a measure of cumulative metabolic stress and trigger cytokines driven inflammatory reactions. AGE are thought to contribute to the chronic complications of diabetes and ESRD. Tissue autofluorescence is related to the accumulation of AGE. Therefore, skin autofluorescence (AF) may provide prognostic information on mortality in hemodialysis (HD) patients. Skin AF was measured noninvasively with an AF reader at baseline in 109 HD patients. Overall and cardiovascular mortality was monitored prospectively during a period of 3 yr. The AF reader was validated against AGE contents in skin biopsies from 29 dialysis patients. Forty-two of the 109 (38.5%) HD patients died. Cox regression analysis showed that AF was an independent predictor of overall and cardiovascular mortality (for overall mortality odds ratio [OR] 3.9), as were pre-existing cardiovascular disease (CVD; OR 3.1), C-reactive protein (OR 1.1), and serum albumin (OR 0.3). Multivariate analysis revealed that 65% of the variance in AF could be attributed to the independent effects of age, dialysis and renal failure duration, presence of diabetes, triglycerides levels, and C-reactive protein. AF was also independently linked to the presence of CVD at baseline (OR 8.8;  $P < 0.001$ ). AF correlated with collagen-linked fluorescence ( $r = 0.71$ ,  $P < 0.001$ ), pentosidine ( $r = 0.75$ ,  $P < 0.001$ ), and carboxy(m)ethyllysine (both  $r = 0.45$ ,  $P < 0.01$ ). Skin AF is a strong and independent predictor of mortality in ESRD. This supports a role for AGE as a contributor to mortality and CVD and warrants interventions specifically aimed at AGE accumulation.

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