

# INCREASING SKIN AUTOFLUORESCENCE ADVANCE GLUCOSYLATION END PRODUCTS (AGEs) PREDICT MORTALITY IN HD PATIENTS

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## INTRODUCTION AND AIMS:

Mortality for haemodialysis (HD) patients remains high, with increased risk for cardiovascular death. In addition to traditional cardiovascular disease (CVD) risk factors; age, smoking, family history of CVD, there are additional risk factors for the HD patient including bone mineral metabolism, anaemia, and advance glycosylation end product (AGEs). AGEs increase in HD patients due to loss of residual renal function and increased inflammation. Although AGEs can be measured in the serum, levels fluctuate with dialysis, and tissue AGEs measured by skin autofluorescence (SAF) have been shown to be a more reliable, reproducible, and convenient method to determine tissue AGEs deposition. In this study, we aim to determine the effect of SAF AGEs on survival in HD patients.

## RESULTS:

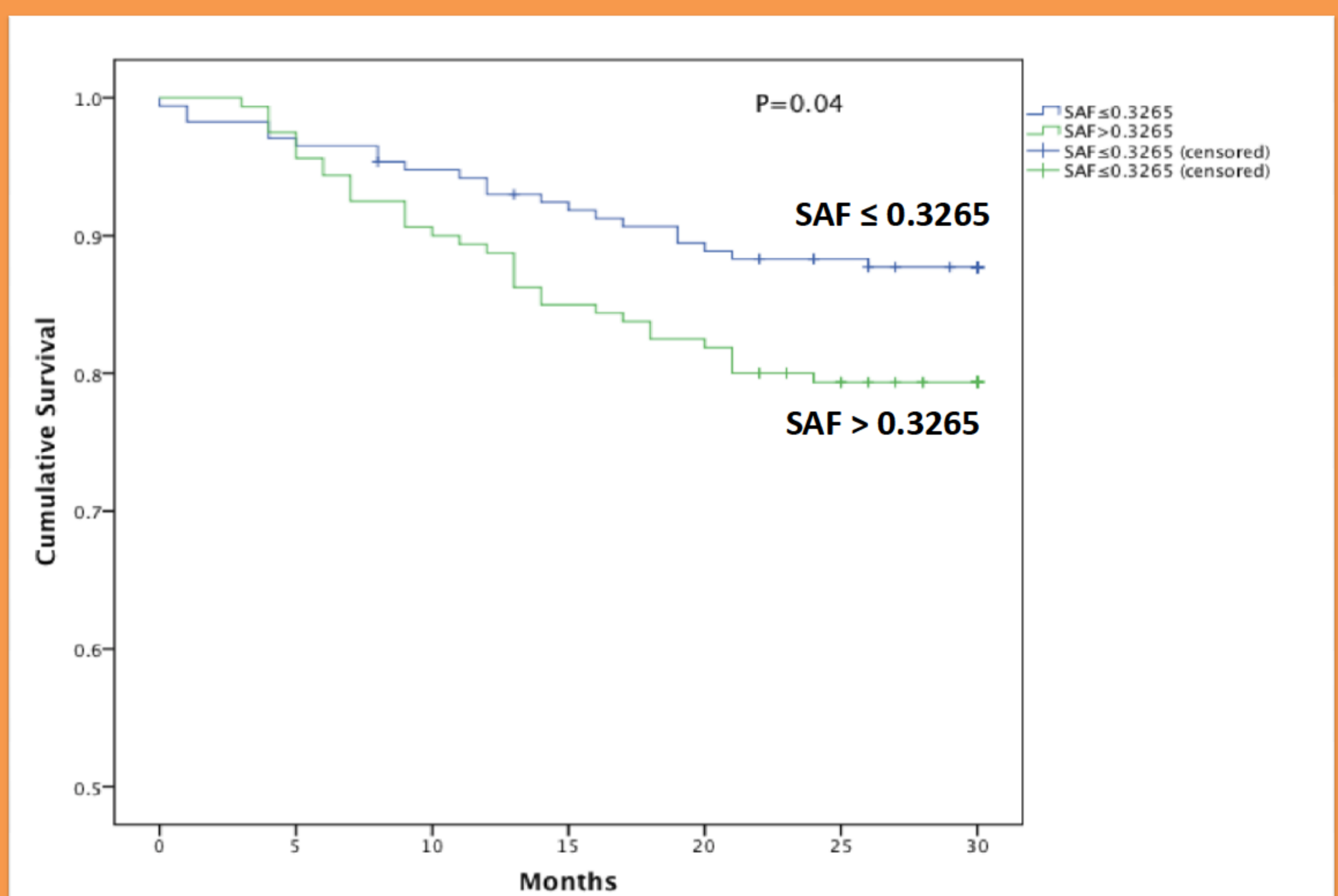
Mean age  $65.2 \pm 15.1$  years, SAF AGEs  $3.265 \pm 0.96$  IU, mean dialysis vintage 65.1 (1-413) months, Kt/V  $1.43 \pm 0.34$ . 64.2 % male, 61.1% hypertensive, 37% current smoker, 8.1% vegetarian, 41.9% diabetes, 32.2% have history of CVD, 16% have history of peripheral vascular disease (PVD), 49% on haemodiafiltration, and 19%, 53.6%, 26.8%, 0.6%, have Davies co-morbidity grades 0-3 respectively. HD patients with SAF > 3.265 IU ( $4 \pm 0.7$ ), had a higher risk of death compared to lower SAF group (Figure 1). Cox proportional hazard model (Table 1) show chronological age and SAF AGEs significantly have negative effect on survival of HD patients, HR 1.65 (1.02-1.33,  $p=0.023$ ), and 12.03 (1.63-88.9,  $p=0.015$ ). However, Davies's co-morbidity score, smoking, diabetes, history of CVD, mode of dialysis, dialysis vintage, dialysis duration, urine volume, ethnicity did not have a significant effect on survival.

## METHODS:

We measured SAF in the non-fistula arm (AGEs reader, DiagnOptics, Groningen, Netherland) 332 chronic HD patients who were followed prospectively for 30 months.

Table 1. Cox proportional hazard model showed factors associated with risk of death.

Parameters	Hazard ratio	Confident interval	P value
Age (year)	1.165	1.02-1.33	0.023
SAF AGEs >3.265	12.02	1.63-88.9	0.015
History of CVD	0.97	0.21-4.46	NS
Diabetes	2.14	0.26-18.0	NS
Smoker	3.87	0.68-22	NS
Serum cholesterol	1.88	0.91-3.88	NS
Davie's score	0.64	0.3-1.35	NS
Dialysis duration (min)	1.01	0.97-1.06	NS
Haemodiafiltration	0.46	0.75-2.83	NS
Log dialysis vintage	1.27	0.15-10.5	NS
Log urine volume	1.12	0.27-46.5	NS
Ethnicities (Caucasian)	1.89	0.91-3.89	NS



## CONCLUSIONS:

Accumulation of SAF AGEs is associated with higher risk of death in HD patients. Strategies to reduce AGEs accumulation in dialysis patients may reduce mortality in very high risk population.