

SKIN AUTOFLUORESCENCE, A MEASURE OF ADVANCED GLYCATION ENDPRODUCTS ACCUMULATION, AND MORTALITY IN PERITONEAL DIALYSIS VERSUS HEMODIALYSIS PATIENTS

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OBJECTIVES

Advanced glycation end products (AGE) are a measure of cumulative metabolic stress and trigger cytokines driven inflammatory skin reactions.

AGE are thought to contribute to the chronic complications of diabetes and chronic kidney disease (CKD).

The aim of the present study was to evaluate the predictive value of skin auto fluorescence on overall cardiovascular mortality in dialysis patients.

METHODS

Skin auto-fluorescence was non-invasively measured in 304 dialysis patients (202 on chronic haemodialysis (HD) and 102 on continuous ambulatory peritoneal dialysis (PD)); These patients were followed prospectively for a mean period of 30 month.

Patients with acute/chronic inflammatory disease and active malignancy were excluded.

Causes of death were divided in: cardiovascular disease (CVD) mortality (myocardial infarction, sudden cardiac arrest, and fatal stroke), sepsis and other causes.

91,6% of the HD patients and 86,3% of the PD were hypertensive.

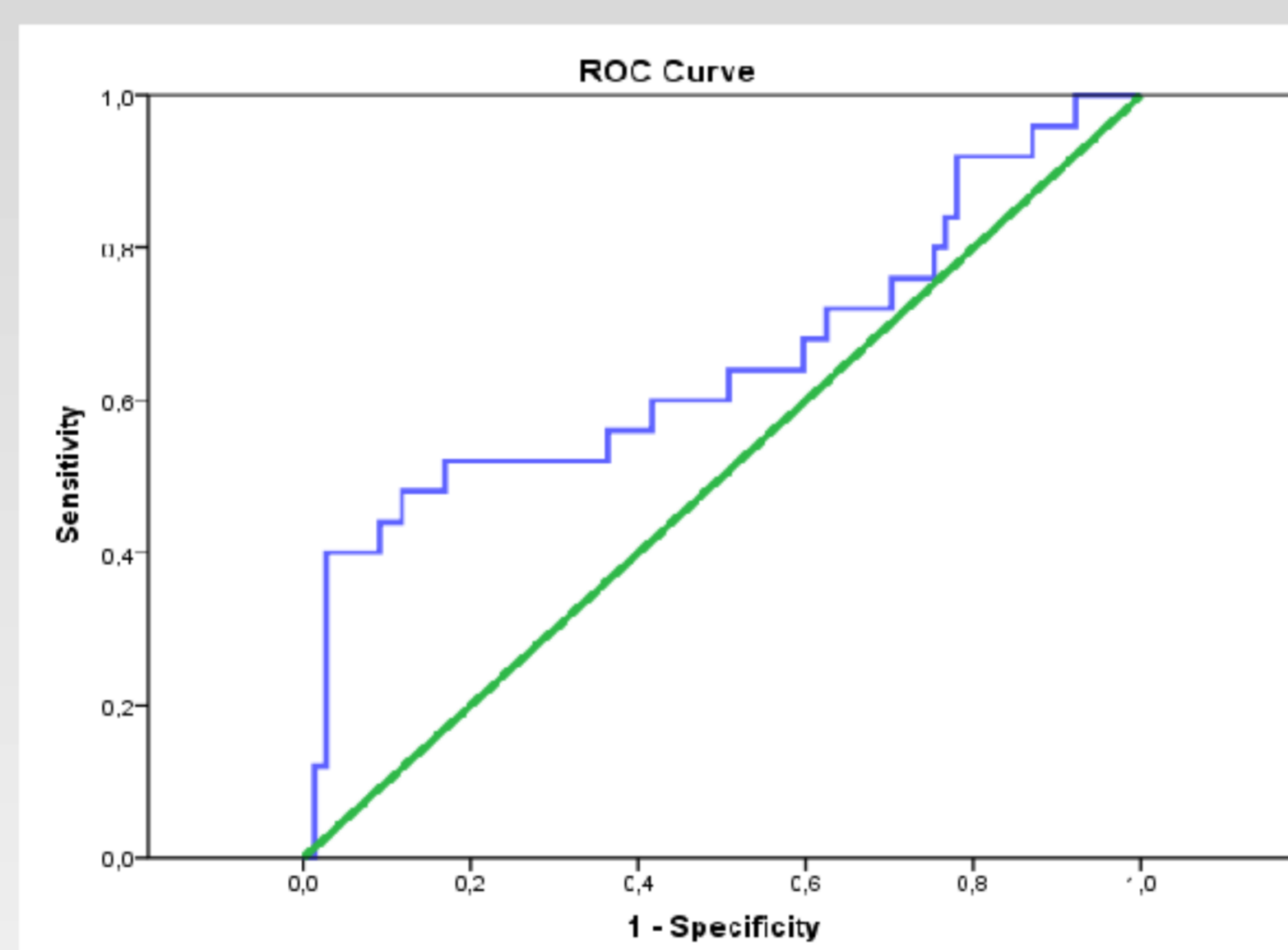
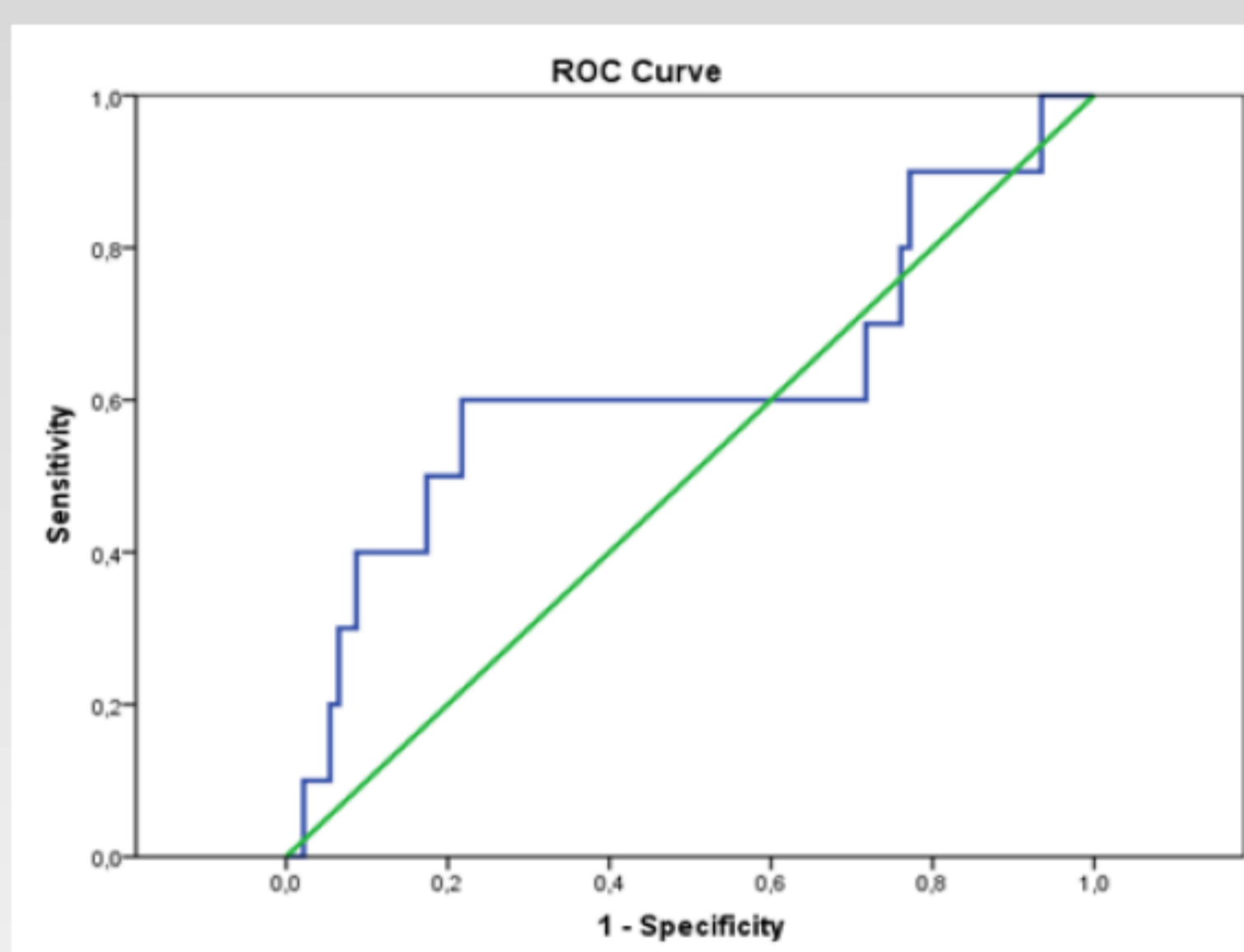
Similar number of patients had CVD at the inclusion (HD 37,1% vs PD 28,4%).

Graphs Text

ROC curve did not reveal the value of AGE as a bio-marker risk assessment effectively cause cardiovascular mortality in patients on HD (AUC 0.62, CI 95%, $p = 0.216$), but mortality was significantly higher in patients with values above the median AGE (Log-Rank $p = 0.024$) fig. 1. ROC curve showed a positive association with the amount of AGE-cause mortality in PD patients (AUC 0.707, 95% CI :0,534-0, 844, $p = 0.015$) fig.2

Fig. 1 Association between AGE and cardiovascular mortality in HD

Fig. 2 Associations between AGE and cardiovascular mortality in PD



RESULTS

Skin auto-fluorescence was higher in HD group compared to PD group (3,61 0,8 AU vs. 3,48 0,7 AU) but the difference was not significant. Diabetic patients in both groups had higher AGE levels but this was significant only for those on HD (3,97 0,8 AU vs. 3,52 0,8 AU, $p < 0,01$). Univariate logistic regression analysis of the HD group showed that age (OR 1,05:1,03-1,09, $p = 0,000$) and diabetes (OR 3,02: 1,33-6,86, $p = 0,008$) were independent predictors of CVD. In the PD group age (OR 1,12), anuria (7,95), smoking status (9,92) and albumin levels (OR 0,93) were the most important independent predictors of CVD. No statistically significant differences were objectified between the two methods of dialysis in relation to mortality from sepsis (58.3 % vs 41.7 %), cardiovascular cause (52.4 % vs . 47.6 %) or other cause (58.3 % vs.41 , 7%), $p = 0.186$.

CONCLUSIONS

We did not reveal any statistically significant difference between AGE level in HD versus PD patients. But, in end stage renal disease diabetes patients AGE level was significantly higher in HD group. Also in HD patients diabetes was independent predictor of CVD We did not found any significant differences between the two methods of dialysis (HD vs PD) regarding all causes mortality.

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