

P314

P314 -Factors associated with change in skin autofluorescence in dialysis patients: a prospective study.

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Introduction: Advanced glycation end-products (AGEs) are uremic toxins and markers of inflammatory and oxidative stress. Tissue AGE accumulation can be assessed non-invasively by using a technique called skin autofluorescence (SAF), which has proven to be an independent predictor of mortality in dialysis patients. It has also been reported that an increase in SAF over time predicts higher mortality on haemodialysis (HD). However, there are no published prospective studies regarding the factors that contribute to changes in SAF over time in the dialysis population. We aimed to investigate the rate of change in SAF over 1 year and the factors that contribute to these changes in dialysis patients.

Methods: SAF was measured in 109 HD and 28 peritoneal dialysis (PD) patients using an Autofluorescence Reader at baseline, 3, 6, 9 and 12 months. The rate of change in SAF was then calculated by fitting a regression line using the "SLOPE" function in Microsoft Excel 2013. Patients were classified into quartiles according to their trend values. Detailed assessment of dietary intake and nutritional status was undertaken at baseline, 6 and 12 months, including energy, protein, fat and dietary AGE intake, handgrip strength (HGS), anthropometric measurements and Subjective Global Assessment (SGA). Routine biochemical variables were also measured.

Results: The mean SAF trend observed was an increase of 0.3 ± 0.6 arbitrary units (AU) per year. Mean SAF trends by quartiles (Q) were -0.43 ± 0.45 AU/y (Q1), 0.14 ± 0.11 AU/y (Q2), 0.47 ± 0.10 AU/y (Q3) and 1.05 ± 0.42 AU/y (Q4). Baseline serum albumin, urea and mid-arm muscle circumference were significantly different between SAF trend quartiles. Patients whose first dialysis modality was HD and current smokers were more likely to be in Q4 than in Q1. A sub-group analysis showed that those patients who were well-nourished initially but developed malnutrition either at 6 or 12 months were more likely to be in Q3 or 4 compared to those who were malnourished initially but became well-nourished at 6 or 12 months (80% vs. 42%; $p=0.022$). No associations were observed with multiple other risk factors.

Conclusion: We found in this observational study that SAF increases over time in most (but not all) dialysis patients. The increase in SAF was higher in patients starting dialysis on HD compared to PD, in current smokers versus former or non-smokers and in those who became malnourished versus those who evidenced improved nutritional status. The relative lack of association with other risk factors implies that SAF is a unique risk marker in dialysis patients. Strategies to reduce or prevent the rise in SAF, including prevention or treatment of malnutrition should be investigated in prospective studies.