Kidney

8.4 Circulating Levels of E-Selectin are Inversely Related to Left Ventricular Wall Thickness in Patients on Regular Dialysis

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Introduction. In dialysis patients soluble E-selectin (sE-Se), a biomarker of endothelial activation, was reported to be inversely related to the risk of death and cardiovascular events in dialysis patients. By contrast, in the general population sE-Se is directly related to atherogenic diseases and carotid atherosclerosis. Moreover, in dialysis patients there was no relationship between carotid atherosclerosis and sE-Se. No data are so far available on the correlation between sE-Se and cardiac remodelling. **Aim.** to evaluate the relationship between left ventricular wall thickness and sE-Se in patients with end-stage renal disease (ESRD).

Methods. 237 patients (134/103 M/F) on regular dialysis from at least 6 months (200 on haemodialysis, 37 on continuous ambulatory peritoneal dialysis), with no clinical evidence of inflammatory diseases were recruited. In a midweek non-dialysis day, fasting blood sampling for the measurement of sE-Se (ELISA, R&D, UK), haemoglobin, calcium, phosphate, glucose, total cholesterol, C reactive protein, homocysteine, as well as echocardiographic studies were performed in the same session.

Results. sE-Se was significantly ($P<0.05$) higher in patients on dialysis (median: 48 $\mu\text{g/L}$, interquartile range 34-54 $\mu\text{g/L}$) than controls ($n=55$, median: 42, 30-54 $\mu\text{g/L}$). Moreover, sE-Se was inversely related to left ventricular mass index (LVMI), that was lower in dialysis patients with sE-Se $>75^{\circ}$ percentile (56.8 $\pm$ 18.9 $\text{g/m}^2.7^{\circ}$) as compared to those dialysis patients belonging to other sE-Se quartiles (sE-Se 50 $^{\circ}$ -75 $^{\circ}$ percentile: 64.5 $\pm$ 18.9 $\text{g/m}^2.7^{\circ}$; $<50^{\circ}$ percentile: 66.7 $\pm$ 20.1 $\text{g/m}^2.7^{\circ}$, $P=0.002$). At univariate analysis, sE-Se was inversely related to Interventricular septal thickness (IVST; $r=-0.22$, $P=0.001$) and posterior wall thickness (PWT; $r=-0.21$, $P=0.001$). At multivariate analysis, the correlations between sE-Se and IVST (beta: -0.12; $P=0.04$), and between sE-Se and PWT (beta: -0.13, $P=0.03$) hold true after adjustment for traditional risk factors (age, sex, smoking, diabetes, cholesterolaemia, blood pressure), previous cardiovascular complications, peculiar factors of ESRD (haemoglobin, albumin, calcium-phosphate product) and emerging risk factors (C Reactive Protein and homocysteine).

Conclusions. The inverse relationship between left ventricular wall thickness and sE-Se could shed light on one of the mechanisms whereby the derangement of E-Se metabolism worsens prognosis of dialysis patients.