Introduction and Aims: The glycoprotein sclerostin (22kD) is a soluble inhibitor of osteoblast function which has been associated with vascular calcifications in patients with CKD-MBD. In hemodialysis (HD) patients sclerostin levels appear positively related to survival. In this study sclerostin was measured in patients who were randomized to online postdilution hemodiafiltration (HDF) or to low-flux HD.

Methods: Data were used from the CONTRAST study (NCT00205556), a RCT comparing HDF with HD. In a subset of patients, serum sclerostin was measured with the BioMedica Sclerostin ELISA kit at baseline and 6, 12, 24 and 36 months thereafter. Data were analyzed using linear mixed effect models with continuous autoregressive covariance matrices. Using an interaction term, it was checked whether the course of sclerostin over time was different for participants treated with either HD or HDF.

Results: Mean age of 396 analyzed patients was 63.6±13.9 years and 61.6% was male. Serum sclerostin concentration increased non-significantly over time in patients treated with HD (Δ +2.72 pmol/L/year, 95% CI -2.04 to +7.49, p=0.26). In patients treated with HDF, serum sclerostin decreased significantly over time (Δ -6.33 pmol/L/year, 95% CI -11.58 to -1.08, p=0.02). As the slopes are in opposite direction (p for interaction = 0.01) and convection is the main difference between HD and HDF, our data indicate that sclerostin is removed by convective transport.

Conclusions: Treatment with HDF decreases serum levels of sclerostin over time. The clinical implications of these findings warrant further research.