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Oral Communication Abstract
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Serum free light chains in hemodialysis patients: a bridge between inflammation, immune system dysfunction and mortality risk

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Objectives: Uremic toxins, poor removed by conventional hemodialysis (HD), represent independent risk factors for mortality in end-stage renal disease (ESRD).
Free light chain (FLC) may be a specific assessment of inflammation, representing a direct function of adaptive immunity through B-cell lineage production.
The aim of this prospective study was to evaluate the clinical impact of FLCs levels in HD patients, during a 2-years follow-up analyzing the relations with biomarkers of inflammation, such as C-reactive protein (CRP) and procalcitonin (PCT), main lymphocytes subsets, such as CD4+ and CD8+ T cell count and high mobility group box (HMGB) -1 levels, as the expression of the innate immune system. The potential link between FLCs levels and mortality risk was assessed.

Methods: 190 HD patients were enrolled and followed for 2 years. Receiver operating characteristics (ROC) analysis was performed to estimate the cut-off points of HMGB-1 and cFLC. Kaplan-Meier survival analysis and Cox proportional multivariate hazards model were used for clinical outcomes.

Results: HD patients were characterized by high FLC levels. kFLC values were 182.3 (IQR: 140.2 – 216.1) mg/L, whereas FLC levels were 108.2 (IQR: 72.7 – 143.2) mg/L. The median combined (c) FLC concentration was 182.9 mg/L (IQR = 207.8 – 330.2). By ROC analysis, HMGB-1 levels > 100.9 ng/mL and cFLC > 223.4 mg/l were associated with a significantly lower survival rate ($p < 0.02$ by log-rank test) than for patients with lower levels when using Kaplan-Meier analysis. After adjusting for confounding factors, by Cox proportional hazards method, the difference remained statistically significant ($p = 0.02$)

Conclusions: We demonstrated an independent relation between high cFLC levels and mortality in HD patients. cFLCs represent a potential biomarker of "inflammunity", a physiopathological process playing a pivotal role in ESRD, based on a vicious circle between inflammation and immune dysfunction.