

NGAL (NEUTROPHIL GELATINASE -ASSOCIATED LIPOCALIN), IRON METABOLISM AND INFLAMMATION IN HEMODIALYZED PATIENTS: POSSIBLE RELATIONS?

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NGAL (neutrophil gelatinase-associated lipocalin) is protein of the lipocalin family and its critically in various states including bacterial infection and kidney injury. On the other hand, hepcidin is a small defensin-like peptide whose production by hepatocytes is modulated in response to anemia, hypoxia or inflammation. In this study we tested the hypothesis whether NGAL is related to iron metabolism and hepcidin in hemodialyzed patients and healthy volunteers. Iron status, complete blood count, creatinine, albumin, serum lipids were assessed using standard laboratory methods. Soluble receptor of transferrin-sTFR high sensitivity CRP, TNF alpha, IL-6, prohepcidin, hepcidin, serum NGAL were measured using commercially available kits. Serum NGAL, prohepcidin, hepcidin were significantly higher in HD patients when compared to the healthy volunteers. Serum NGAL correlated significantly with prohepcidin, hepcidin, serum creatinine, serum urea, urea reduction ration, Kt/V, residual renal function, serum calcium, phosphate, Ca x P product, pH, serum iron, TSAT, ferritin, ESA dose, hsCRP, IL-6. In multiple regression analysis urea reduction ratio, TSAT and hsCRP were predictors of serum NGAL in HD patients. In the healthy volunteers NGAL was related to white blood cell count, serum creatinine, hepcidin and serum iron.

Conclusions: NGAL is highly induced in dialyzed patients. NGAL is involved in both kidney function and iron metabolism. Taking into account antitmicrobial moieties of NGAL, further studies are needed to address the role of NGAL in the iron metabolism and inflammation in renal failure.