

## **ABERRANT ACTIVATION OF THE TNF- $\alpha$ SYSTEM AND PRODUCTION OF FAS AND SCAVENGER RECEPTORS ON MONOCYTES IN PATIENTS WITH END-STAGE RENAL DISEASE**

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**BACKGROUND.**In patients with end-stage renal disease (ESRD), monocytes undergo accelerated in vitro apoptosis. The apoptosis could be induced by the cytokines such as tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ). The aim of this study was to evaluate the effect of both uremic toxin and dialysis modality on the relationship between the expression of Fas antigen, scavenger receptors and TNF- $\alpha$  system.

**METHODS.**Four groups of subjects were evaluated: 10 non-dialyzed chronic renal failure (CRF) patients, 14 continuous ambulatory peritoneal dialysis (CAPD) patients, 16 hemodialysis (HD) patients and 10 normal controls (NC). Quantitative flow cytometry with dual antibody staining was applied to measure the expression of Fas antigen (CD95), scavenger receptors (CD36 and CD68), and tumor necrosis factor-receptor 2 (TNF-R2; CD120b) on monocytes. Correlations between these markers, total leukocyte number and differential counts were also checked.

**RESULTS.**Our results demonstrated that lymphocytopenia can occur in ESRD patients. Monocyte counts were prominently decreased in the CRF group. The Fas expression on monocytes was significantly increased in HD patients compared with the other three groups. Its intensity in CRF and CAPD groups was also greater than in the NC group. The results of CD120b expression were similar to that of Fas expression. The monocyte CD36 expressions in dialysis groups (including CAPD and HD) were significantly higher than those in CRF and NC groups. Expression of CD68 was also significantly increased in HD patients. The Fas expression revealed positive correlation with CD120b ( $r=0.443$ ,  $p=0.01$ ) and CD68 ( $r=0.415$ ,  $p=0.05$ ).

**CONCLUSION.**ESRD patients presented with accelerated expression of apoptotic markers and scavenger receptors combined with activation of the TNF- $\alpha$  system especially in HD patients. A positive correlation between Fas, TNF-R2 and scavenger receptors indicated a close relationship of apoptosis and the activation of TNF- $\alpha$  cytokine system on monocytes in ESRD patients.

**Key words:** Apoptosis–End-stage renal disease–Fas–Scavenger receptor–TNF- $\alpha$