THE EGYPTIAN JOURNAL OF IMMUNOLOGY Vol. 12 (2), 2005
Page: 155-165

Role of tumour necrosis factor alpha and CD95 as markers of apoptosis in pathogenesis of pediatrics renal diseases

Doaa M Twfeek [1], Seham M Zaki

Department of Pediatrics, Faculty of Medicine, Zagazig University, Zagazig, Egypt.

PMID: 17977220

Many renal diseases are characterized by mononuclear cell infiltrate, inflammatory cells may provide factors that cause paranchymal cell apoptosis. Monocytes and macrophages release TNFalpha, Fas ligand, oxygen radicle species and nitric oxide which may stimulate or inhibit the inflammatory response. The aim of this work is to investigate the role of apoptosis in pathogenesis of renal diseases. Eighty children were studied. They divided into four groups: group; I included (20) patients, 10 of them suffering from chronic renal insufficiency (CRI) and treated conservatively, and 10 with end stage renal disease (ESRD) on regular hemodialysis. Group II include 40 patients: (30) nephrotic syndrome cases, (10) were steroid sensitive and (20) were steroid resistant (SRNS). Another (10) were acute glomuleronephritis cases. Group III include (10) cases of urinary tract infection and group IV include (10) age and sex matched healthy children. All groups were subjected to: full history, thorough clinical examination, laboratory investigation. Complete blood picture, blood urea, serum creatinine, radioactive isotope scan of the kidney, renal biopsy for SRNS cases, measurements of serum TNFalpha and CD95 as markers of apoptosis. The results of this study showed significant increase of both TNFalpha and CD95 in all patients groups in comparison with control group ($P<0.001$). Both TNFalpha and CD95 levels correlated significantly in all patients groups. There was a highly significant positive correlation between blood urea, serum creatinine and apoptotic markers ($r=0.66, 0.67$). On the other hand there was a significant negative correlation between glomerular filtration rate and apoptotic markers ($r= -0.72$). Significant rise of apoptotic markers was found in post dialysis than in pedialysis groups of patients ($P<0.05$). In conclusion apoptotic markers (TNFalpha and CD95) were significantly increased in all groups of renal diseases. So apoptosis may play a role in pathogenesis of renal diseases. Further study of each disease separately and future use of antiapoptotic and antioxidants therapy in such patients are recommended.