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Urinary CD80 is elevated in minimal change disease but not in focal segmental glomerulosclerosis

Xiaorong Liu and **Chen Ling**
Beijing Children's Hospital, China

Background & Aims: Early diagnose of minimal change disease (MCD) in nephrotic syndrome (NS) patients remains challenge. We often make diagnose of MCD by invasive kidney biopsy. CD80 is a trans-membrane protein, present on podocytes in a number of experimental models of nephrotic syndrome. Urinary CD80 is significantly elevated in MCD but not in focal segmental glomerulosclerosis (FSGS) or other glomerulopathies. The aim of this study was to investigate the role of the urinary CD80 as a biomarker for diagnosis of MCD.

Materials & Methods: A total of 165 subjects, 129 males and 36 females were enrolled in this study. Urinary samples were collected from 37 patients with active MCD, 27 patients with FSGS, 30 patients with other glomerulopathies and 71 healthy people. Using ELISA, we compared values with the result of kidney biopsy.

Results: The concentration of urinary CD80 was significantly higher in the active MCD group (689.66±378.21 ng/g creatinine) than those in the FSGS group (123.49±167.88 ng/g creatinine $p<0.001$), other glomerulopathies group (152.37±220.14 ng/g creatinine, $p<0.001$) and the control group (81.83±23.01 ng/g creatinine; $p<0.001$). A cut-off value of 328.98 ng/g creatinine was proposed with a sensitivity of 81.1% and specificity of 94.4%. The area under the ROC (receiver operating characteristic) curve for the urinary CD80 to diagnosis MCD was 0.925 (95% confidence interval: 0.873-0.978).

Conclusions: This experiment has preliminarily confirmed urinary CD80 as a non-invasive diagnostic biomarker which owned a practical and significant value in the diagnosis of MCD.

Biography

Xiaorong Liu is currently a Professor and Chief Physician, Director of Department of Nephrology; Beijing Children's Hospital affiliated with Capital Medical University and is a Director of the Beijing Children's Blood-Purification Center. She is a Member of Beijing Blood Purification Center of Quality Control and Improvement Committee, Nephropathy Rheumatology group, Pediatrics Branch, Beijing Medical Society, Kidney Disease Committee of Beijing Traditional Chinese Medical Society and Therapeutic Medicine Research Committee of Pharmacological Society of China. She is a Standing Committee Member of Physicians Association of China, an Editorial Board Member of Chinese Journal of Applied Clinical Pediatrics, Chinese Journal of Practical Pediatrics and Journal of Pediatric Grand Rounds. She has participated in and presided over national 863 projects, Fifteenth Five Year Plan of China Projects, the Beijing Municipal Science and Technology Commission's Characteristics of the Capital Projects, Development of Capital's Business and Industry Projects. She has published more than 40 papers and ten of them in Pediatric Nephrology, Pediatric Pulmonology, Medicine and other high caliber journals and has been included in SCI.

desin2000@sina.com

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