

# Microproteinuria: Indicator to monitor CNI-related nephrotoxicity in liver transplant recipients?

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Deterioration of renal function with CNI therapy has been widely reported in liver transplant recipients. Microproteinuria has been used to monitor the early changes of nephropathy in renal disease or cardiovascular events. However, whether microproteinuria could be used as an early and sensitive indicator to monitor CNI-related nephrotoxicity in liver transplant recipients has not been unequivocally addressed.

A research article to be published in June 21, 2009 in the *World Journal of Gastroenterology* addresses this question. The research team led by Professor Yan from West China Hospital of Sichuan University studied the use of microproteinuria in early diagnosis of CNI-related nephrotoxicity after liver transplantation. Measurements of microproteinuria including Alpha-1-microglobulin (Alpha-1m),  $\beta_2$ -microglobulin ( $\beta_2m$ ), immunoglobulin, microalbumin and transferrin were performed with a Dade Behring array nephelometry system.

Follow-up data of this study demonstrated that there was a downward trend in renal function over time, with the persistence of microproteinuria. The urinary concentration of  $\beta_2m$  and Alpha-1m significantly increased with the subtle changes in renal function in the study groups, but the levels of SCr and BUN significantly increased only when renal function was severely damaged by CNI nephrotoxicity. The subsequent reductions in GFR were closely correlated with the increases in Alpha-1m and  $\beta_2m$ . Fewer patients were found to have  $\beta_2m$  in the urine than Alpha-1m in this study as  $\beta_2m$  is unstable in fresh urine. This problem can partly be overcome by maintaining the urine pH value (by adding basic buffer to the [urine](#)) to prevent the degradation of  $\beta_2m$ .

This study suggested that urinary  $\beta_2m$  and

Alpha-1m are sensitive urinary markers for detecting CNI-related nephrotoxicity in [liver transplant](#) recipients. The results are interesting and may represent a screening method to prevent the progression of CNI-related subclinical renal dysfunction after liver transplantation.

More information: Li J, Liu B, Yan LN, Wang LL, Lau WY, Li B, Wang WT, Xu Q, Yang JY, Li FG. Microproteinuria for detecting calcineurin inhibitor-related nephrotoxicity after liver transplantation. *World J Gastroenterol* 2009; 15(23): 2913-2917. [www.wjgnet.com/1007-9327/15/2913.asp](http://www.wjgnet.com/1007-9327/15/2913.asp)

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