



Marshfield Laboratories is one of the first laboratories in Wisconsin to offer Cystatin C

Cystatin C (CyC) is a low molecular weight protein (13.3 kDa) which is produced by all nucleated cells at a relatively constant rate and which is freely filtered in glomerulus. It is then reabsorbed and catabolized in the proximal tubule. Relatively little CyC appears in the urine unlike creatinine (CR). Also, unlike CR, there is no tubular secretion or extrarenal elimination. Thus, the blood concentration of CyC depends entirely on the GFR. It is also largely unaffected by diet or nutritional status. More importantly, it is not dependent on muscle mass as with CR. As a consequence, normal ranges tend to be relatively constant across gender and age with levels being similar for males and females after the second year of life. Higher levels are found in the elderly, likely related to a decline in renal function.

Various studies have shown that CyC rises earlier with kidney injury than does CR, particularly with mildly reduced GFR's in the 70-90mL/min range. This observation has been demonstrated in renal involvement associated with acute kidney injuries, liver transplantation, cardiac surgery, cisplatin chemotherapy, coronary angiography, following uninephrectomy, and in progressive diabetic nephropathy. In a prospective study of high-risk intensive care patients, CyC detected acute renal failure 1-2 days earlier than CR. Similarly in patients undergoing removal of one kidney and losing 43% of renal function, CyC increased one day after surgery while serum CR increased after two days. In diabetic patients, CyC correlates better with true GFR than CR or CR-based equations in patients with normal or near normal renal function, but provides little benefit over CR or CR-based equations in subjects with reduced GFR. Several other studies also support the notion that CyC is more sensitive in the 60-90mL/min region where CR measurements are imprecise and current CR-based GFR equations are less reliable. Thus the strength of CyC appears to be in Stages 1-2 disease of chronic kidney disease.

Please contact us at 800-222-5835 for more information.