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From: Prof CWK Lam
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Date: 15 October 2004

To: All COSs,
All DOMs and Ward Managers
All Doctors
NTE Cluster Hospitals

Glomerular Filtration Rate (GFR) Estimation by the Abbreviated Modification of Diet in Renal Disease (MDRD) Study Group Formula Implementation Date: 1 November 2004

Creatinine clearance has been used for decades in monitoring the glomerular filtration rate (GFR) of patients with renal impairment. However, this method requires a tedious procedure of collecting 24-hour urine for measurement of urine volume and the analysis of both plasma and urine creatinine concentrations. Inaccuracy can occur with incomplete urine collection especially in paediatric patients, or when minute volumes of urine are collected from patients with advanced renal insufficiency.

As recommended by the American Society of Nephrology in 2003, a simplified equation (abbreviated MDRD formula) should be used for the prediction of GFR.[1] In this equation, plasma creatinine concentration, age, and sex of the patient are used for calculating GFR in a mathematical model.[2]

Please note that with effect from 1 November 2004, NTE Cluster Chemical Pathology will provide GFR estimation by the abbreviated MDRD formula apart from the standard 24-hour urine creatinine clearance. The test code for this request is MDRD no matter using either laboratory request system (LRS) via computer or paper forms. The specimen requirement is lithium heparin blood (no need for urine collection). However, GFR estimation cannot be provided if the plasma creatinine concentration is below the normal sex-related reference intervals. In our opinion this limitation of the MDRD formula is clinically acceptable.

If there is any enquiry on the above arrangement, please contact our Duty Biochemist at 2632-2685 or 2632-2331, or page through PWH Operator at 2632-2211 for discussion.

Thank you for your kind attention.

Sincerely yours,

Prof CWK Lam

References:

1. Lin J, Knight EL, Hogan ML, Singh AK. A comparison of prediction equations for estimating glomerular filtration rate in adults without kidney disease. *Journal of the American Society of Nephrology* 2003; 14:2573-80.

2. Levey AS, Bosch JP, Lewis JB, Greene T, Rogers N, Roth D. A more accurate method to estimate glomerular filtration rate from serum creatinine: a new prediction equation. Modification of Diet in Renal Disease Study Group. *Annals of Internal Medicine* 1999; 130:461-70.

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