

ESTIMATION OF GFR BY MDRD FORMULA AND ITS CORRELATION TO COCKCROFT-GAULT EQUATION IN FIVE STAGES OF CHRONIC KIDNEY DISEASE.

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Cockcroft-Gault (CG) equation was proposed as early as in 1976. Because of its simplicity and easy bedside use, it was readily accepted by the physicians. The CG formula enjoyed this monopoly till the MDRD equation was proposed in 1999. There are several studies comparing the accuracy of these two formulas with variable results. However the data from Asia especially from Pakistan is scanty.

We conducted a cross section study of 70 patients presented to the nephrology clinic of a tertiary care hospital in Karachi Pakistan over a period of 1 year. We compared the eGFR by these two formulas in five stages of chronic kidney disease (CKD) defined as per K/DOQI. Abbreviated 4 variable MDRD formula was used

MDRD results were expressed in ml/min/1.73m² and CG results in ml/min. Age range was 15 – 79 years; Male 34, Female 36. Mean GFR by MDRD formula for stages 1-5 was 111±30, 77±24, 39±9, 21±6 and 13±4 respectively. Mean GFR by CG equation for stage 1-5 was 119±28, 78±13, 43±7, 23±3 and 12±2 respectively. The correlation (r) between eGFR by MDRD and CG for stages 1-5 was 0.64; 0.31; 0.32; 0.67; and 0.45 respectively. Mean and median eGFR by MDRD was 48±40 and 32(158-7) respectively for all patients. Mean and median eGFR by CG was 52±42 and 36(197-7) respectively for all patients.

We conclude that CG equation correlates best with MDRD formula at CKD stage 4 followed by stage one. The eGFR by MDRD was less, as compare to by CG, in stages 1, 3 and 4. We speculate that correction of eGFR by CG equation to a body surface area of 1.73m² will further improve the correlation but it requires an additional measurement of height. There is a need of a large scale population based study to validate our results.