

## 만성 신부전증 환자에서 각종 사구체 여과율 산출 방법의 비교

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### Comparison of Various Methods for Estimating Glomerular Filtration Rate in Patients with Chronic Kidney Disease

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**Background:** Even though K/DOQI recommends Modification of Diet in Renal Disease (MDRD) equation for the assessment of glomerular filtration rate (GFR), various methods for estimating GFR have been used in clinical setting. However, estimating GFR have some limitations in some clinical conditions such as old- aged person. **Purpose:** This study was performed to investigate the variation in GFR measured by different methods and to determine the most accurate method in estimating GFR.

**Method:** A total of 549 patients with stage 2- 5 chronic kidney disease (CKD) who underwent 24- hour urine study and  $^{99m}\text{Tc}$ - DTPA renal scan were enrolled. GFR was also calculated by using Cockcroft- Gault (CG- GFR) and MDRD equation (MDRD- GFR). The correlations between GFR estimated by MDRD and other methods were analyzed according to the age of patient (<40, 40- 59, and  $\geq 60$  years) and the stage of CKD.

**Results:** The mean age of patients was  $55 \pm 19$  year with sex ratio 1.5:1 and the mean MDRD- GFR was  $22.5 \pm 18.7 \text{ mL/min/1.73m}^2$ . Estimated GFR by  $^{99m}\text{Tc}$ - DTPA renal scan and CG- GFR, and creatinine clearance by 24- hour urine study (Ccr- GFR) correlated significantly with MDRD- GFR in all age groups and in all CKD stages ( $p < 0.01$ ). However, the ratios of CG- GFR/MDRD- GFR and Ccr/MDRD- GFR were  $1.29 \pm 0.20$  and  $1.05 \pm 0.43$ , respectively, whereas DTPA- GFR/MDRD- GFR ratio was  $2.24 \pm 1.40$  in patients with stage 5 CKD, suggesting that DTPA renal scan overestimates GFR in advanced renal failure patients. Similar patterns (Ratios of CG- GFR, Ccr- GFR, and DTPA- GFR to MDRD- GFR;  $1.00 \pm 0.17$ ,  $0.94 \pm 0.33$ , and  $1.62 \pm 1.12$ , respectively) were also observed in old- aged patients.

**Conclusion:** Even though Ccr, DPTA- GFR, and CG- GFR correlated significantly with MDRD- GFR, DTPA renal scan tends to overestimate GFR, especially in old- aged and advanced CKD patients.

**Key Words:** 만성 신부전증, 사구체 여과율, MDRD  
Chronic renal failure, GFR, MDRD