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EVALUATING GLOMERULAR FILTRATION RATE IN HEALTHY POTENTIAL KIDNEY DONORS

Thanh-Tam Tran-Thai[1], Khac-Chuan Hoang[2], Minh-Sam Thai[2], Le Nguyen-Thi[4], Ngoc-Sinh Tran[3]
[1]Department of Physiology, Can Tho University of Medicine and Pharmacy, Vietnam
[2]Department of Urology Department, Cho Ray Hospital, Vietnam
[3]Department of Urology Department, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam
[4]Department of Physiology Department, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam

Objectives: Assessing accurate estimation of glomerular filtration rate (GFR) healthy potential kidney donors is indispensable component of donor evaluation to ensure that kidney donation is not performed using donors with even mild renal impairment.

The aim of the study was to determine normal values for GFR by age on the basis of creatinine clearance (Clcr24h), 99mTc-DTPA clearance (mGFR) and estimated GFR based on Scr, ScysC and its correlation with Clcr24h and mGFR.

Methods: Healthy potential kidney donors were included in this study at Cho Ray Hospital between 2015 and 2017. The living donors' GFRs were estimated by Cockcroft-Gault, the Modification of Diet in Renal Disease (MDRD), Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI creatinine 2009), CKD-EPI creatinine-cystatin C 2012, CKD-EPI cystatin C 2012 and 6 other ScysC-based equations (Arnal Dade, Filler-LePage, Hoek, Grubb, Le Bricon, Rule). The creatinine clearance and ^{99m}Tc-DTPA clearance were considered as the measured GFR (mGFR).

Results: A total of 100 healthy individuals (49 males, 51 females) participated in the study. The mean of Clcr24h and mGFR were 92,2±15,1 and 96,9±10 ml/min/1,73m^2, respectively. At the age of over 40, Clcr24h of healthy potential kidney donors declined by 9ml/min/decade. eGFR of Cockcroft-Gault, MDRD, CKD-EPI creatinine 2009, CKD-EPI creatinine cystatin C 2012, CKD-cystatin C 2012 and Le Bricon were 97,3±17,2; 87,3±13,5; 95,8±13,1; 95,3±13; 94±16 và 94,3±13,8 ml/min/1,73m^2, respectively. eGFR of CKD-EPI based on Scr and ScysC had the strongest correlation with Clcr24h and mGFR.

Conclusions: At the age of over 40, Clcr24h of healthy potential kidney donors declined gradually. The combination of eGFR of CKD-EPI based on Scr and ScysC optimized the GFR evaluating in healthy potential kidney donors.