Estimation of Glomerular Filtration Rate (GFR) Formulas: CKD EPI Equation, CKD EPI Equation Modified for Asian, and Modification of Diet in Renal Disease (MDRD)

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Abstract

The selection of the right and efficient formula in estimating GFR is still an interesting topic in the medical world, especially nephrology. The CKD Epi and MDRD formulas have long been used in American, Australian and European populations. The results of GFR measurements from these two formulas in other populations such as Asia need further study. Differences in ethnicity, culture, diet, and so on can be biased factors in establishing the diagnosis of kidney disease. The existence of the CKD Epi Modified for Asian formula can be an option for Asian populations such as Indonesia. So based on these reasons, it is necessary to conduct a comparison test of the measurement results to the three (3) formulas. This study is comparative study between the formula CKD Epi Modified for Asian, CKD Epi, and MDRD. Serum creatinine data was taken from 30 men aged 19 years in Bengkulu who used purporsive sampling techniques. Data were analyzed univariate and bivariate using IBM SPSS 25.0 applications to see homogeneity and differences per formula. The mean value per GFR formula showed a significant difference (p-value=0.03), but with the same homogeneity value (p-value=0.86). The CKD Epi Modified for Asian formula has significant differences from the MDRD formula (p-value=0.02). There is a significant difference between the three formulas (p-value = 0.03), with the same homogeneity value (p-value = 0.86).

Keywords

CKD EPI, MDRD, GFR