Calculation of creatinine clearance from plasma creatinine

Abstract:

Glomerular filtration rate (GFR) is commonly assessed by measurement of endogenous creatinine clearance (Ccr). Several formulae have been described to calculate Ccr from plasma creatinine. I have evaluated the effectiveness of four formulae in 35 healthy subjects (21M and 14F, 18-34 years) and in 41 patients (24M, 17F, 20-69 years) attending a renal clinic with diminished renal function (serum creatinine 200-600 mumol/l). The GFR was measured using 51 Cr-EDTA clearance and endogenous Ccr. The Ccr was also estimated by four formulae. In healthy subjects Ccr calculated by the formulae of Cockcroft and Gault and Hull et al gave higher correlation coefficient (0.710 and 0.714 respectively) with endogenous Ccr than the formulae of Gates and that of Jellife (0.514 and 0.586 respectively). When all the subjects with a wide range of GFR (3.5-145 mls/min) were considered all the four formulae gave reasonable correlation, but the formula of Cockcroft and Gault was the best. It is recommended that in developing counties with limited resources, the formula of Cockcroft and Gault can be used to estimate Ccr from plasma creatinines.