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EDITORIAL COMMENT

In this article, "Can serum creatinine be used as a surrogate for glomerular filtration rate in single renal unit models?" Gofrit and colleagues derive an estimate of GFR in an ischemic model of acute renal failure in pigs with unilateral nephrectomy. The authors rightly note that the more accurate measures of GFR are not simple while use of creatinine is limited by accuracy due to the variable secretion of this molecule by the proximal tubule. Despite these variables, the use of serum creatinine to estimate GFR remains common place. The Schwartz formula (used in pediatrics) or the cockcroft-gault or modification of diet in renal disease formulas can be used to predict GFR coarsely. What was not pointed out by the authors is that most measures of GFR are done in chronic renal failure, in steady state, not acute renal failure where GFR is changing over a relatively short period of time as was the case in their study. This is primarily a matter of practicality. GFR is a moving target in the setting of acute renal failure and the most accurate measures of GFR require a steady state situation.

What is remarkable about this study is the degree of correlation between the iohexol clearance and creatinine based estimate. This probably relates to the uniformity of their study subjects (all female pigs weighing 25 kg-30 kg) and mechanism of injury. As a word of caution however, the formula derived to estimate GFR may not apply to chronic renal failure in their porcine model should the authors intend to study that disease process in the future. In the end, one could ask if measuring and comparing serum creatinine alone would suffice in this single renal unit model?

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