# Evaluation of estimated GFR using a point of care (POC) measure of creatinine in patients with iohexol determinate GFR

Violeta Stojkovic[1], Pierre Delanaye[2], Marie-Louise Schleck[1], Caroline Le Goff[1], Etienne Cavalier[1]

[1] Department of Clinical Chemistry, University of Liège, CHU Sart-Tilman, 4000 Liège, Belgium

[2]Nephrology, Dialysis, Transplantation, University of Liège, CHU Sart-Tilman, 4000 Liège, Belgium

## Introduction

There is a significant risk to develop acute kidney failure after injection of an iodine contrast media for diagnostic purpose. The risk is even higher if the patient already suffers from chronic kidney failure. Determination of creatinine levels and GFR estimation before injection allows early detection of high-risk patients. However, because of organization issues, this analysis is rarely realized. A quick determination of creatinine by a POC device would thus facilitate the analysis. We recently evaluated the POC creatinine measured with the StatSensor (Nova Biomedical), which allows an enzymatic determination in 30 seconds.

## Material & Methods

56 participants (27 women and 29 men; mean age 56.63±2.53 and 49.89±2.34 respectively) for whom GFR was measured with the gold standard HPLC-iohexol method (GFRm) were enrolled in this analysis. For each patient, enzymatic creatinine was determinate with two different devices: the routine Roche Cobas analyzer and the POC StatSensor. Both values of creatinine levels were used in the CKD-EPI equation for GFR estimation (GFRe).

## Results

Passing Bablok regression gave the following equation: $GFRe_{POC}$ = -0.64 (95% CI : -5.9 to 5.3) + 0.96 (95% CI : 0,89 to 1,04) x $GFRe_{CoBAS}$. The Bland–Altman plot showed a mean bias of -2±10 mL/min/1.73m$^2$. Compared to the iohexol GFR determination, we observed the following Passing Bablok equation: $GFRe_{POC}$ = -9.85 (95% CI : -23,83 to -1.73) + 1.04 (95% CI : 0,91 to 1,21) x $GFR_{iohexol}$. Mean biais (GFRe-GFRm) was estimated at -4±15 mL/min/1.73m$^2$ for the Roche Cobas and -6±15 mL/min/1.73m$^2$ for the POC. Trueness at 30% was evaluated at 80% and 89% for GFRe using creatinine determinations with Roche Cobas and POC respectively.

## Conclusion

The POC StatSensor (Nova Biomedical) is a reliable device in the GFR screening before contrast media injection.