RADIOMETER

Salvagno *et al*: Analytical evaluation of Radiometer **ABL**90 FLEX PLUS enzymatic creatinine assay

This scientific insight paper captures the main findings from the 2019 publication by Salvagno *et al* from University of Verona in Italy "Analytical evaluation of Radiometer ABL90 FLEX PLUS enzymatic creatinine assay" published in Journal of Laboratory and Precision Medicine [1].

Suitable, lower imprecision and extremely valid [1]

The authors conclude that "ABL90 FLEX PLUS creatinine enzymatic assay is at least as suitable as conventional clinical chemistry enzymatic techniques for routine and urgent diagnosis of kidney diseases".

It is highlighted that the intra-assay imprecision of the creatinine measurement on ABL90 FLEX PLUS was found to be even lower than many of the commercially available clinical chemistry techniques and many of the POCT techniques available on the market.

The authors further argue that the intra-assay, inter-assay and total impression are systematically lower than 2%, making ABL90 FLEX PLUS extremely valid considering that the analytical goals of serum creatinine measured with routine laboratory instrumentation has been set at <8% for diagnosing and staging CKD, and at <4% for diagnosing AKI, respectively.

The background for these conclusions is a comprehensive analytical performance evaluation of ABL90 FLEX PLUS covering the assessment of both intra-assay, inter-assay and total imprecision, linearity (recovery) and method comparison with a reference enzymatic creatinine assay and a Jaffe technique on a routine clinical chemistry analyzer.

POCT relevance for CKD, AKI and contrast induced nephropathy

The clinical relevance of these findings is put in context by the authors as they explain that chronic kidney disease (CKD), with a prevalence of 13.4%, has become a worldwide health issue that is associated with considerable clinical, social, and economic consequences. Also, epidemiological data suggests that the life-threatening disorder acute kidney injury (AKI) may complicate 16% of hospital admissions.

According to the authors, rapid and accurate assessment of creatinine is valuable in the diagnosis of both CKD and AKI as well as assessing the risk of contrast-induced nephropathy and for short- or long-term monitoring of kidney function in the general population and in hemodialyzed patients. Also, POCT testing has become commonplace in short stay and critical care units for producing rapid results. In addition, the authors argue that overall creatinine values would enable making many life-saving diagnostic decisions provided that the accuracy of these measurements can be assured.

References

1. Salvagno GL, Pucci M, Demonte D, Gelati M, Lippi G. Analytical evaluation of Radiometer ABL90 FLEX PLUS enzymatic creatinine assay. J Lab Precis Med 2019; 4: 26. DOI: 10.21037/jlpm.2019.07.01.