

Real-Time, Non-Invasive eGFR Monitoring

Purpose: To develop an online, non-Invasive serum creatinine measurement and monitoring eGFR during cardiac catheterization to avoid acute kidney injury (AKI) through the process. Method: Based on near infra-red (NIR) spectrometry an oximeter like manner approach was applied for serum creatinine. It is based on illuminating a light beam on the skin where a detector collects the reflected beam. The back light withholds information on the target molecule. The obtained data is processed through an algorithm of prediction/calculating resulting in a real-time eGFR determination. 60 blood samples from normal individuals, CKD & hemodialysis patients with serum creatinine of 0.8-12.4 mg/dl traditionally determined were compared with the suggested method. Results: Correlation results of 0.99% were obtained (Figure) between the reference samples (traditionally determined) results and the calculated concentrations by using NIR analysis of the diffracted/reflected spectra. Conclusion: A reliable eGFR monitoring via an optic method can be applied during cardiac catheterization to reduce AKI risk.

