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GLICEMIC VARIABILITY EVALUATED BY CONTINUOUS GLUCOSE MONITORING SYSTEM I-PRO™ AND RENAL FUNCTION DETERIORATION AFTER PERCUTANEOUS CORONARY INTERVENTION: PRELIMINARY RESULTS OF A PROSPECTIVE STUDY

i2 Poster Contributions
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Background: Previous studies demonstrated a significant correlation between pre-procedural glycemic levels and post-procedural creatinine increase in patients undergoing percutaneous coronary intervention (PCI). However, of late, the degree of glucose fluctuations, rather than the absolute value of glycemia, seems to better estimate patients' metabolic status. Thus, the aim of this study is to evaluate the correlation between glycemic variability (measured by a subcutaneous continuous glucose monitoring system, iPro™, during and after PCI) and creatinine increase after contrast administration.

Methods: The population consisted of 22 patients with diabetes mellitus type 2 or impaired glucose tolerance, who underwent PCI at our institution. At hospitalization, the iPro™ was positioned onto enrolled patients in order to measure glycemic fluctuations in the periprocedural (up to 24 hours after PCI) and postprocedural (from 24 hours to 6 days) period. Glycemic variability was expressed by the glycemic Coefficient of Variability (CV - ratio between standard deviation and average of all measured glycemic values) and the Mean Amplitude Glycemic Excursions (MAGE, the arithmetical mean of the amplitude of all glycemic excursions measured between peaks and nadirs; in particular, MAGE+ considering only nadir-to-peak excursions and MAGE- peak-to-nadir fluctuations). Blood samples were collected before and at 6 and 24 hours after PCI to measure creatinine levels.

Results: A post-procedural increase in creatinine levels was observed in 12 patients (55%). Those patients showed higher glycemic variability measured as CV (30% vs 24% in patients without renal function deterioration, p=0.06). The MAGE were 69 mg/dL and 57 mg/dL in patients with and without creatinine increase (p=0.27), with MAGE+ 76 mg/dL vs 57 mg/dL (p=0,12) and MAGE- 59 mg/dL vs 58 mg/dL (p=0,90), respectively.

Conclusions: This study evaluates, for the first time, the usefulness of continuous glucose monitoring through iPro™ in patients with impaired glucose metabolism undergoing PCI, demonstrating the correlation between peri- and post-procedural glycemic variability and creatinine increase after contrast injection.