

# KSN 2016 Abstract Submission

## *Acute Kidney Injury*

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### COMPARISON OF TZIAKAS RISK SCORE VS MEHRAN RISK STRATIFICATION IN PREDICTING CONTRAST-INDUCED ACUTE KIDNEY INJURY AMONG PATIENTS UNDERGOING CORONARY ANGIOGRAPHY OR PERCUTANEOUS CORONARY INTERVENTION

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**Background:** Contrast-induced acute kidney injury (CI-AKI) is a reversible form of acute kidney injury (AKI) that occurs soon after the administration of iodinated contrast media and has become one of the leading causes of hospital acquired acute kidney injury. Therefore, it is necessary to identify patients at risk in order to implement preventive strategies. At St. Luke's Medical Center-Quezon City (SLMC-QC), the Mehran Risk Stratification model is used to stratify patients for coronary angiogram and percutaneous coronary intervention (PCI). The Tziakas Risk Score is a new risk stratification model that offers some advantages compared to the current risk scoring that are being used. The new scoring system can be applied to both elective and emergency PCI. If proven to be more specific and sensitive than Mehran Risk Stratification, the Tziakas Risk Score could be the new standard of risk stratification for CI-AKI after coronary angiogram or PCI at SLMC-QC.

**Methods:** This is a cross-sectional analytic study. 414 patients who underwent coronary angiogram and/or PCI were included. These patients were both stratified using Tziakas Risk Score and Mehran Risk Stratification. CI-AKI was defined as either of the following: increase in serum creatinine by  $\geq 0.5$  mg/dl, or an increase in serum creatinine  $\geq 25\%$  of the baseline following the administration of contrast media. The primary outcome was the occurrence of CI-AKI or the need to do renal replacement therapy.

**Results:** CI-AKI occurred in 55 out of 414 (13.28%) of the study population. 13 out of 414 (3.62%) of the patients required hemodialysis after the procedure. There were more patients who underwent coronary angiography only with poorer pre-procedural kidney function like higher creatinine levels, lower GFR, and more pre-existing renal disease leading to a higher post-procedural creatinine. Also, more patients in the coronary angiography group have congestive heart failure. Patients underwent PCI have more contrast medium being used. The overall accuracy of Tziakas Risk Score is 84.5% (CI 81.1-88%), while Mehran Risk Stratification has an overall accuracy of 81.6% (CI 77.9-85.4). The AUC of patients who underwent coronary angiography or PIC, Tziakas Risk Score has 0.75 with SE 0.04 while Mehran Risk Stratification has 0.70 with SE 0.04. For the AUC of patients who underwent coronary angiography only, Tziakas Risk Score has 0.73 with SE 0.06 while Mehran Risk Stratification has 0.69 with SE 0.06. The subgroup analysis of the AUC for patients who underwent PCI only showed a statistically significant difference between the Tziakas Risk Score (AUC-0.79; SE-0.5) and Mehran Risk Stratification (AUC-0.71; SE-0.06).

**Conclusion:** In conclusion, Tziakas Risk Score or Mehran Risk Stratification can be used to stratify patients who will undergo coronary angiography. In patient who will undergo PCI, Tziakas Risk Score has a better predictive value compared to Mehran Risk Stratification.

**Table:**

**Keywords:** acute kidney injury, radiocontrast, coronary angiography, percutaneous coronary intervention, risk stratification