

# WORLD BIOSIMILARS CONFERENCE

## Annual Conference on NEPHROLOGY AND UROLOGY

August 20-21, 2018  
Chicago, USA

### Time trend of ideal biomarker of acute kidney injury in diabetic patients undergoing Coronary Artery Bypass Graft (CABG)

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**Abstract:** Background: Acute kidney injury (AKI) is an important complication in patients undergoing cardiac surgery. Our study was designed to determine if Tissue Inhibitor Metallo Proteinase (TIMP)-1, 2,3,4 versus Neutrophil gelatinase-associated lipocalin(NGAL )& Procalcitonin can predict AKI early in diabetic CABG patients.

**Methods:** In 40 diabetic patients undergoing coronary artery bypass graft surgery. Serum TIMP-1,2,3,4, NGAL, procalcitonin & serum creatinine were recorded at four time points: at baseline pre-surgery, 4 hours after cardiopulmonary bypass (CPB), 12h post operative and 24h postoperative day.

**Results:** 13 of 40 patients developed AKI. Diagnosis based on AKIN criteria & all patients classified as stage 1. Pre operative Serum TIMP- 1,3,4,NGAL, procalcitonin Mean  $\pm$  SD respectively were  $468.97 \pm 297.09$ ,  $93.17 \pm 40.93$ ,  $4.13 \pm$

$2.64$ ,  $8.43 \pm 2.23$ ,  $0.01 \pm 0.03$  ng/ml continue rising to reach respectively  $956.88 \pm 519.33$ ,  $125.99 \pm 29.38$ ,  $7.66 \pm 1.38$ ,  $10.69 \pm 1.92$ ,  $0.11 \pm 0.16$  ng/ml at 4h post operative before rising of serum creatinine & TIMP2 which delayed at 12h post operative.

**Conclusions:** Serum TIMP-1,3,4,NGAL & procalcitonin can be used as a predictive test to identify patients at increased risk of AKI very early 4h post CPB before rising of serum creatinine. TIMP-2 increase was delayed 12h post operative as it may not be an early marker in non septic patients. Procalcitonin is not always considered as a marker of sepsis. Most of AKI occurred at 12h post operative. Neither CPB time nor urine output (UOP) has statistical significance in diabetic CABG patients.

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