# Urinary TIMP2*IGFBP7 is an early biomarker of acute kidney Injury, early predicting CRRT start in critically ill patients

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## Introduction

Standard criteria for acute kidney injury (AKI), like serum creatinine (sCr) and urine output (UO), are poor, late and non-specific diagnostic tools, measuring renal function, but not renal injury

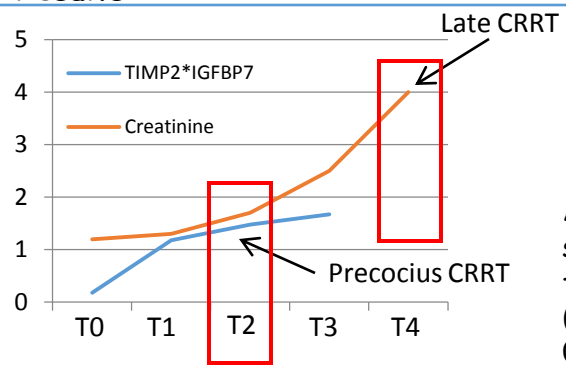
## Objective

Analyze tissue inhibitor metalloproteinase-2 (TIMP2) * IGF-binding protein 7 (IGFBP-7) for early prediction of AKI, evaluating its role to start precociously the continuous renal replacement therapy (CRRT)

## Methods

Observational study enrolling 42 patients after cardiac surgery. TIMP-2*IGFBP7 was examined in serial urine collections pre-surgery (T0), at ICU admission (T1), after 24 (T2), 48 (T3) and 72 h (T4).

## Results




TIMP-2*IGFBP7 was defined as "positive for AKI" at a concentration >1.6 $(ng/ml)^2$ /1000.

At Roc Curve, TIMP-2*IGFBP7 showed the best performance for severe AKI at 24 hours (T2): AUC 0.78 (95%CI 0.66-0.82).

CRRT duration was longer in patients who had a TIMP-2*IGFBP7 > 1.7 $(ng/ml)^2$ /1000 (6.7±1.3 days versus 4.2±1.1 days. p=0.02).

## Conclusions

Early assessment of TIMP2*IGFBP7 after admission in ICU may predict severe AKI, allowing for precocius start of RRT in patients with normal serum creatinine and urinary output.

This biomarker could be inserted in a clinical score (SOFA, APACHE), not evaluating a single value, but its trend, during the first 3 days of ICU stay.

38th Vicenza Course on AKI&CRRT
a week of virtual meetings
2-6 November 2020