

Category : **Renal: failure**

A393 - Serum creatinine ratio as predictor of patient-centered long-term outcome after cardiac surgery

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Introduction:

Acute kidney injury (AKI) in patients undergoing cardiac surgery relate to the development of major adverse kidney events up to day 90 (MAKE90). We tested whether the serum creatinine ratio (sCrRatio), defined as the ratio between the highest serum creatinine in the first five post-operative days and the pre-operative measurement, can predict major adverse kidney events up to day 90 (MAKE90).

Methods:

A development cohort and an external validation cohort with patients undergoing cardiac surgery were investigated.

Results:

In the development cohort (n=6576), 54.2% of patients developed AKI by post-operative Day 5 using the kidney disease global outcomes (KDIGO) criteria, and in the validation cohort (n=554) this was 28.4%. The cut-off value (where sensitivity was equal to specificity) for sCrRatio was 1.25 in the development cohort. The incidence of MAKE90 in the development cohort was 16.7% and in the validation cohort 24.4%. In the development cohort, the positive and negative predictive value (PPV and NPV (95% Confidence Interval)) for patients with AKI to develop MAKE90 were 25% (23-26) and 92% (91-93), for sCrR higher than cut-off they were 33% (31-35) and 90% (90-91). In the validation cohort they were 42% (34-51) and 83% (79-88) and 47% (38-54) and 81% (2.37-6.03), respectively.

Conclusion:

Calculation of the sCrRatio is simple and identifies patients at risk for meeting the MAKE criteria 90 days after cardiac surgery.

Table:

	KDIGO-AKI (development)	sCrRatio (Development)	KDIGO-AKI (validation)	sCrRatio (Validation)
Sensitivity	78% (95%CI 75-80%)	70% (95%CI 67-73%)	53% (95%CI 43-63%)	42% (95%CI 34-51%)
Specificity	52 (95%CI 50-53%)	67% (95%CI 66-68%)	77% (95%CI 72-81%)	84% (95%CI 79-88%)
PLR	1.61 (95%CI 1.55-1.68)	2.11 (95%CI 2.00-2.23)	2.26 (95%CI 1.72-2.96)	2.61 (95%CI 1.87-3.63)
NLR	0.43 (95%CI 0.39-0.48)	0.45 (95%CI 0.41-0.49)	0.61 (95%CI 0.50-0.76)	0.69 (95%CI 0.59-0.81)
PPV	25% (95%CI 23-26%)	33% (95%CI 31-35%)	42% (95%CI 34-51%)	47% (95%CI 38-55%)
NPV	92% (95%CI 91-93%)	90% (95%CI 90-91%)	83% (95%CI 79-88%)	81% (95%CI 79-84%)
Accuracy	56% (95%CI 55-57%)	67% (95%CI 66-75%)	71% (95%CI 66-75%)	73% (95%CI 69-78%)

Performance characteristics of all measurements