DESCRIPTIVE STUDY ABOUT ACUTE KIDNEY INJURY IN PATIENTS AFTER CARDIAC SURGERY

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Background:

Acute Kidney Injury (AKI) is a common complication in patients that required cardiopulmonary bypass pump (CBP) during cardiac surgery. The incidence and prevalence ranges from 5-30%, based on the definition used. Besides, renal replacement therapy (RRT) requirement ranges between 1% and 5%.
The aim of this study is to identify the prevalence of AKI in patients after CBP according to the latest KDIGO guidelines in order to understand the importance of modificable risk factors.

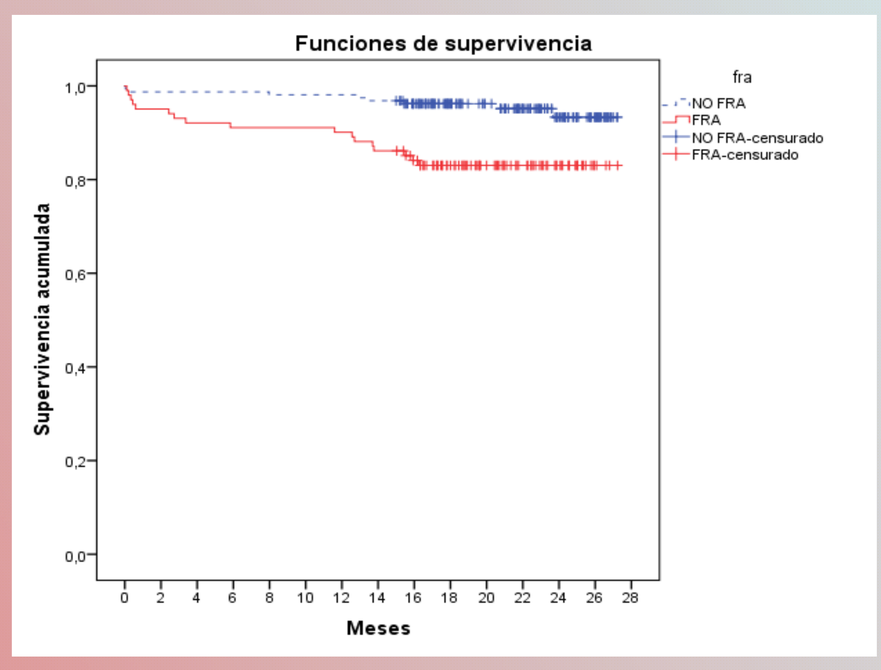
Methods:

We performed a retrospective single-center cohort study of patients who underwent an on-pump in coronary artery bypass graft (CABG) or an openchamber valve procedure (valve repair or replacement) between January and December 2014. Patients with and without AKI were identified using the KDIGO guidelines definition. The inclusion criteria were patients with on-pump CABG or an open- chamber valve procedure older than 18 years. The exclusion criteria were chronic kidney disease (CKD) stage 5, patients with RRT before the surgery and minimal surgical procedures. Clinical characteristics at admission and in the day of the surgery were collected. Statistical analysis was performed with STATA package. Comparisons between No-AKI and AKI groups were made by using X^2 for categorical variables and Mann-Withney U test and Student´s *t* test for quantitative parameters. The mortality was accessed using the Kaplan-Meier curves and the Log Rank test.

Results:

258 patients were enrolled, among then 101 (39.1%) developed AKI during the ICU stay. The variables that differed significantly between No AKI and AKI groups were: (a) age [67 versus 73 years, p: <0.0001], (b) history of high blood pressure [29.3% versus 80.2%, p: <0.0001], (c) history of diabetes mellitus [22.3% versus 70.3%, p: <0.0001], (c) Euroscore 2 [6 versus 7.5, p: <0.0001], (d) Cleveland score [2 versus 3, p: <0.0001], (e) time on-pump [84 versus 106 minutes, p: <0.0001], Hemoglobin [13 versus 11 g/dL, p: <0.0001], (f) Length of stay in CU [2 versus 4 days, p: <0.0001]. Those patients with AKI showed a significant mortality rates comparing patients without AKI (p: 0,001)

	Total n= 258	No AKI n= 157 (60.9%)	AKI n= 101 (39,1%)	p value
Age (years, median, IQR)	70 (34 – 87)	67 (36 – 85)	73 (34- 87)	<0.0001
High blood pressure (n, %)	127 (49.2%)	46 (29.3%)	81 (80.2%)	<0.0001
Diabetes mellitus ID (n, %)	103 (39.9%)	7 (4.5%)	96 (95.0%)	<0.0001
Euroscore 2 (score, median, IQR)	6.56 (0 – 16)	6 (0 – 16)	7.5 (0 – 16)	<0.0001
Cleveland score (score, median, IQR)	2.82 (0 – 11)	2 (0 – 5)	3 (0 -11)	<0.0001
Length of ECC (minutes, median, IQR)	99.1 (30 – 242)	84 (30 – 242)	106 (46 – 225)	<0.0001
Hemoglobin (g/dL, median, IQR)	12.4 (7.2 – 17,2)	13 (7.8 – 17.2)	11 (7.2 – 15.9)	<0.0001
Length of stay in CSU (dyas, mean, IQR)	3 (1 – 100)	2 (1 – 10)	4 (1 – 100)	<0.0001



Conclusions:

AKI is a frequent and important complication of cardiac surgery and it is associated with increased in mortality and length of hospital stay.
Significant differences with long time with CBP was associated with AKI
Future studies focus in prevention of AKI should be developed.

References:

Karkouti K, et al. Acute Kidney Injury after cardiac surgery: Focus on modificable risks factors. Circulation. 2009; 119:495-502

Thakar Ch, et al. A clinical score to predict acute renal failure after cadiac surgery. JASN. 2005; 16: 162-168.

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