

INCIDENCE OF ACUTE KIDNEY INJURY IN COVID-19 PATIENTS RECEIVING NONINVASIVE MECHANICAL VENTILATION OUTSIDE INTENSIVE CARE UNIT: A MULTICENTER STUDY

N. De Vita*, U. Morosini, V. Rondi, S. Carbonati, S. Baino, M. Maestrone, S. Querio, S. Carollo, F. Crimaldi, R. Vaschetto and V. Cantaluppi
for the COVID-19 Eastern Piedmont Network

Università del Piemonte Orientale, Dipartimento di Medicina Traslazionale, Via Solaroli, 17 28100 – Novara, Italy

Objective

To report cumulative incidence and outcome of **acute kidney injury** in **COVID-19** patients treated with **noninvasive continuous positive airway pressure (CPAP)** ventilation outside intensive care unit

Methods

- Inclusion Criteria

- COVID-19 patients from five hospitals of Eastern Piedmont Region
- Acute hypoxemic respiratory failure
- Noninvasive CPAP respiratory support

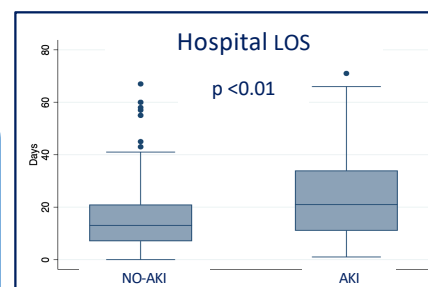
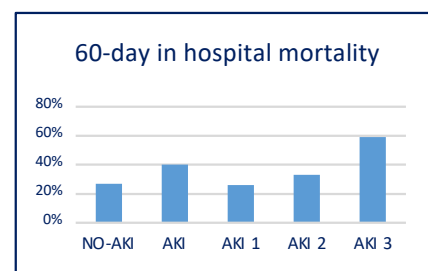
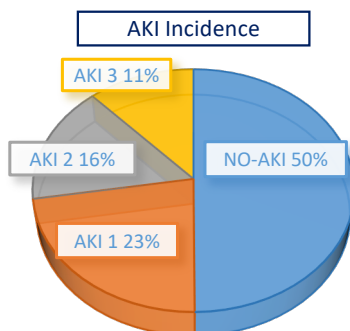
- AKI Definition (KIDIGO 2012)

AKI Stage	Serum Creatinine		
	Lower Bound		Upper Bound
NO AKI	(-)	max	min x 1.5)
AKI 1	[min*1.5	max	min x 2)
AKI 2	[min*2	max	min x 3)
AKI 3	[min*3	max	-)

Results

	NO-AKI n=224	AKI any stage n=225	AKI 1 n=101	AKI 2 n=71	AKI 3 n=53
Age, years	68 (58-75)	69 (61-74)	69 (62-75)	68 (57-73)	69 (63-74)
Male, n (%)	158 (71)	174 (77)	73 (72)	58 (82)	43 (81)
Body mass index, Kg/m ²	27 (25-31)	28 (25-31)	29 (26-32)	26 (25-31)	28 (25-31)
White blood cell count, x10 ³ /μL	6.7 (4.7-8.9)	6.7 (5.3-9.72)	6.5 (5.3-8.8)	7.1 (5.2-11.3)	6.9 (5.5-9.6)
Lymphocyte count, x10 ³ /μL	0.8 (0.6-1.2)	0.8 (0.6-1.1)	0.8 (0.6-1.2)	0.8 (0.7-1.2)	0.9 (0.6-1.0)
Creatinine, mg/dL	0.93 (0.75-1.17)	1.04 (0.82-1.4)*	1.01 (0.79-1.35)	1.06 (0.87-1.28)	1.04 (0.82-1.67)
Chronic arterial hypertension, n (%)	104 (46)	123 (54)*	57 (58)	34 (48)	32 (60)
Diabetes, n (%)	49 (22)	68 (30)*	34 (34)	19 (27)	15 (28)
Hospital length of stay, days	13 (7-21)	21 (11-34)*	21 (12-30)	20 (9-35)	24 (13-41)
60-day in-hospital mortality, n (%)	61 (27)	90 (40)*	26 (26)	33 (47)	31 (59)

* Mann Whitney U test p-value <0.05 AKI vs NO-AKI



Conclusion

- AKI is a **common complication** among COVID-19 patients requiring CPAP
- Patients developing AKI have a **prolonged hospital stay** and a **higher mortality rate**

38th Vicenza Course on AKI&CRRT
a week of virtual meetings

2-6 November 2020