

AKI in critically ill patients with COVID-19



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Epidemiology of AKI in COVID-19

Location	N	ICU	CKD	AKI	RRT
New York	5700	14.3%	8.5%	3.5%	3.2%
California	377	30%	12.7%	n/a	n/a
Wuhan	191	26%	1%	15%	5%

Lancet 2020; 395: 1054–62 Published Online, March 9, 2020 [https://doi.org/10.1016/S0140-6736\(20\)30566-3](https://doi.org/10.1016/S0140-6736(20)30566-3)

JAMA. Published online April 22, 2020. doi:10.1001/jama.2020.6775

JAMA. Published online April 24, 2020. doi:10.1001/jama.2020.7202



Pathophysiology of AKI in COVID-19

> Postulated mechanisms:

- Hypovolemia – diuresis, positive pressure ventilation
- ATN – cytokine storm, shock
- Glomerular – case reports
- Venous congestion – PE/RV failure
- Thrombotic Microangiopathy
- Direct viral cytotoxicity

> Autopsy:

- 26 patients – dominant finding ATN



Management of AKI in COVID-19

High	1	2	3
Discontinue all nephrotoxic agents when possible			
Ensure volume status and perfusion pressure			
Consider functional hemodynamic monitoring			
Monitor Serum creatinine and urine output			
Avoid hyperglycemia			
Consider alternatives to radiocontrast procedures			
	Non-invasive diagnostic workup		
	Consider invasive diagnostic workup		
		Check for changes in drug dosing	
		Consider Renal Replacement Therapy	
		Consider ICU admission	
			Avoid subclavian catheters if possible



Renal replacement therapy

- > CRRT vs PIRRT/SLED vs IHD
 - Supply chain
 - Anticoagulation
- > Peritoneal dialysis

<https://www.asn-online.org/covid-19/>



Unanswered questions

- > Better define risk factors for AKI
- > Mechanism of renal injury
- > Optimizing renal replacement therapy in surge conditions
- >

