

به نام خداوند جان و خرد

Kidney & COVID19

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Objects

- AKI & COVID19
- CKD & COVID19
- ESRD & COVID19
- Hemoperfusion & COVID19

Acute kidney injury (AKI)

Definition of AKI

- AKI is an abrupt reduction in kidney function currently defined as:
 - An absolute increase in serum Cr of ≥ 0.3 mg/dL within 48 h.
 - At least 50% increase in Cr higher than baseline within 1 week.
 - A reduction in urine output to < 0.5 mL/kg/hr for > 6 h.

Epidemiology

- AKI complicates **5 – 7%** of acute care hospital admissions & up to **30%** of admissions to the intensive care unit.

با تشکر و آرزوی سلامتی



CKD

Definition of CKD

Structural or functional abnormalities of the kidneys for ≥ 3 months, as manifested by either:

1. Kidney damage, with or without decreased GFR.

Or

2. GFR < 60 ml/min/1.73 m², with or without kidney damage

Markers of kidney damage

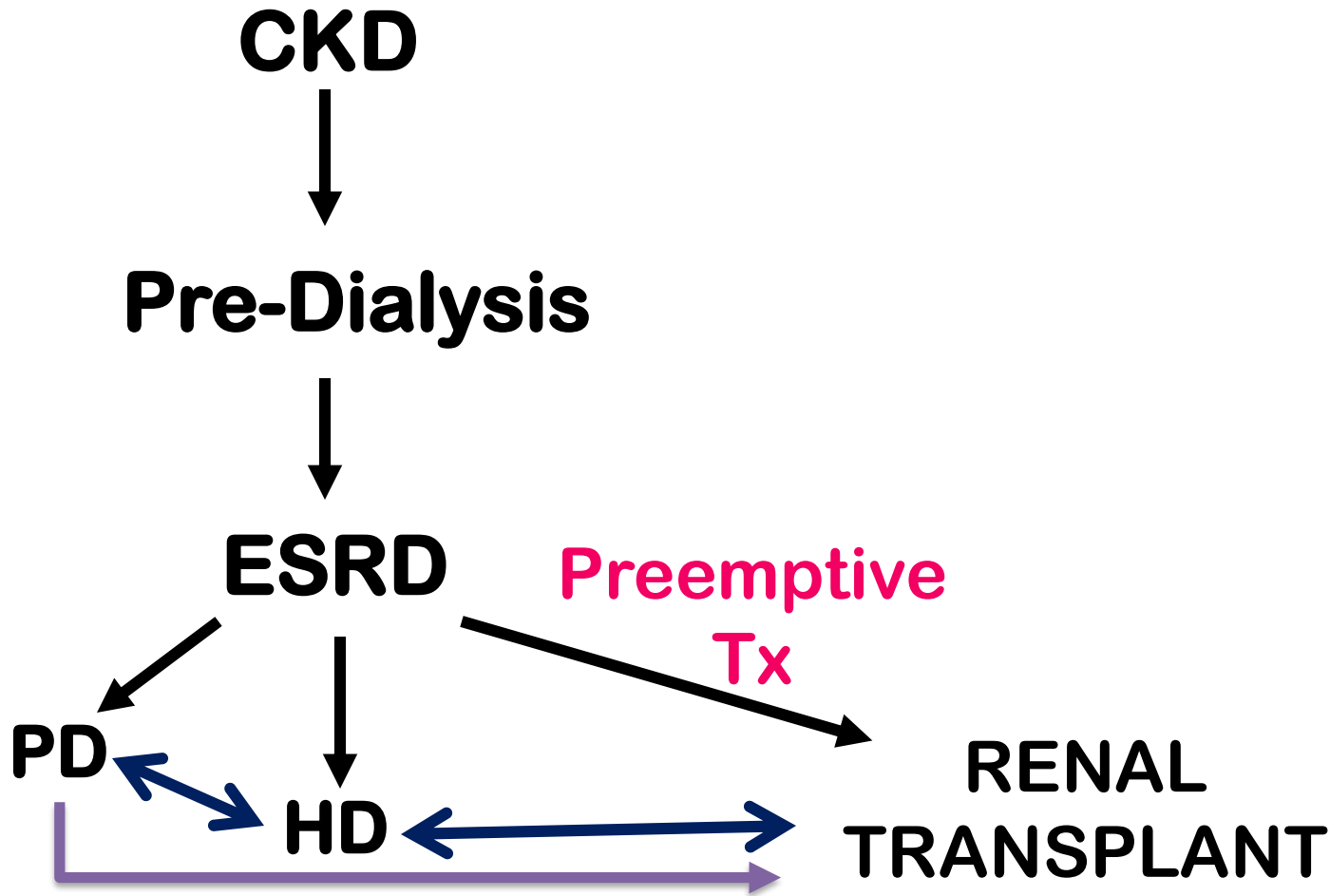
- Albuminuria (albumin excretion >30 mg/24 hr or ACR >30 mg/g)
- Urine sediment abnormalities
- Electrolyte & other abnormalities due to tubular disorders
- Histologic abnormalities
- Structural abnormalities detected by imaging
- Hx of kidney Tx
- HTN is a frequent sign of CKD but should not by itself be considered a marker of it.

Prevalence of CKD & Estimated Number of Adults with CKD in the US (NHANES 88-94)

Stage	Description	GFR (ml/min/1.73 m ²)	Prevalence %
1	Kidney Damage with Normal or ↑ GFR	≥ 90	3.3
2	Kidney Damage with Mild ↓ GFR	60-89	3.0
3	Moderate ↓ GFR	30-59	4.3
4	Severe ↓ GFR	15-29	0.2
5	Kidney Failure	< 15 or Dialysis	0.1

EDRD

Renal Replacement Therapy



Hemoperfusion

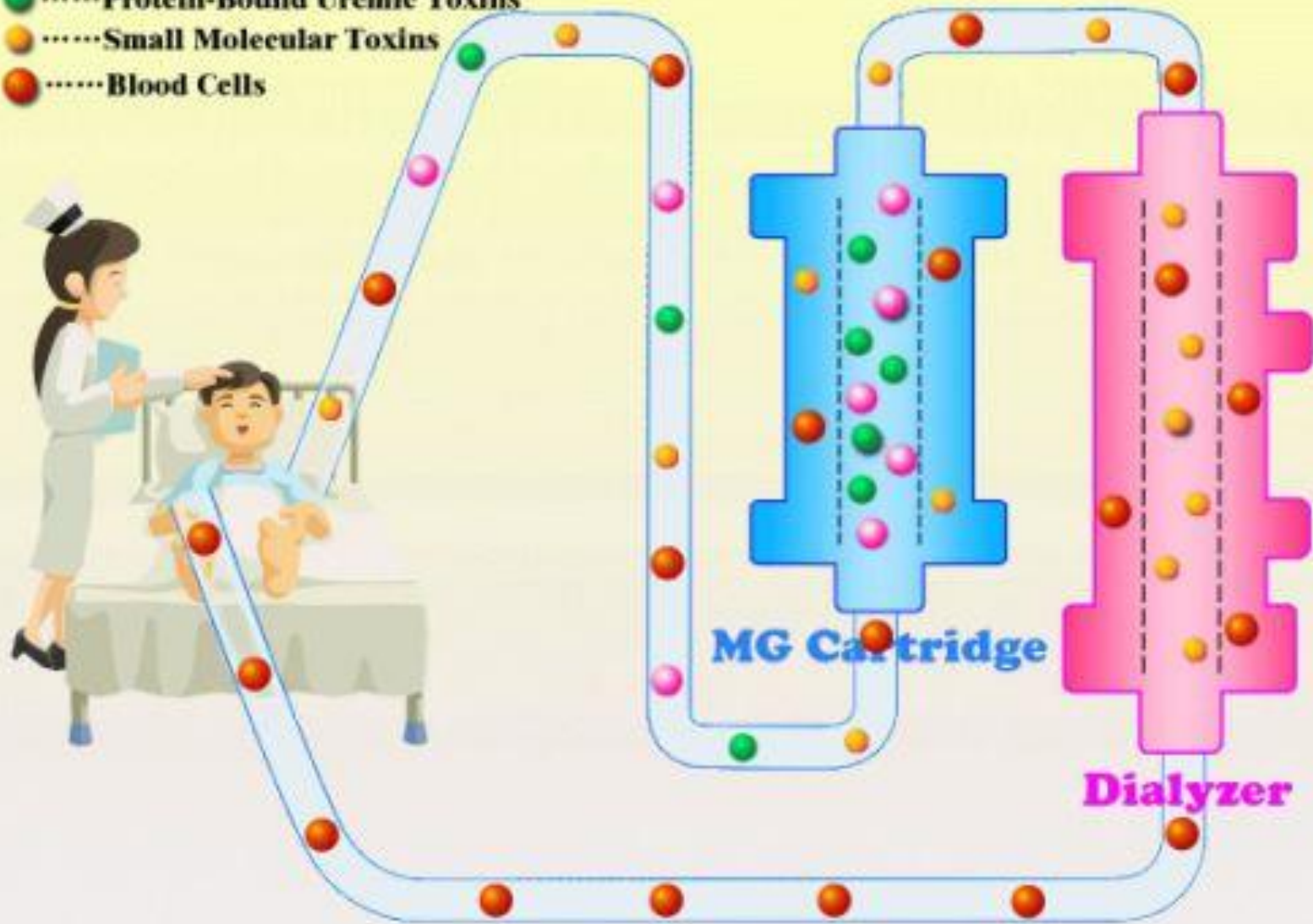
Hemoperfusion

- The blood extracorporeally (that is, outside the body) to remove a toxin.

OR

- Hemoperfusion is the process whereby blood is passed through a sorbent system to remove specific toxic substances in the blood.

-Middle and Large Molecular Toxins
-Protein-Bound Uremic Toxins
-Small Molecular Toxins
-Blood Cells



Hemoperfusion cartridge



Hemoperfusion

