

15. RENAL FAILURE

!! JAY AMBE !!

15. RENAL FAILURE

PREPARED BY

DR. NAITIK D. TRIVEDI,

M. PHARM, PH. D

LECTURER AT GOVERNMENT AIDED,

**A. R. COLLEGE OF PHARMACY & G. H. PATEL INSTITUTE OF PHARMACY, VALLABH
VIDYANAGAR, ANAND, GUJARAT**

Mobile: +91 - 9924567864

E-mail: mastermindnaitik@gmail.com

&

DR. UPAMA N. TRIVEDI,

M. PHARM, PH. D

ASSOCIATE PROFESSOR & HoD (Pharm. D),

**INDUBHAI PATEL COLLEGE OF PHARMACY AND
RESEARCH CENTRE, DHARMAJ, GUJARAT**

E-mail: ups.aasthu@gmail.com

15. RENAL FAILURE

What is Kidney (Renal) Failure?

Kidney (renal) failure is when kidneys don't work as well as they should. The term "kidney failure" covers a lot of problems. These problems can result in kidney failure:

- Your kidney doesn't get enough blood to filter
- Your kidney is hurt by a disease like
 - high blood sugar (diabetes)
 - high blood pressure
 - glomerulonephritis (damage to the kidney's tiny filters)
 - polycystic kidney disease
- Your kidney is blocked by a kidney stone or scar tissue

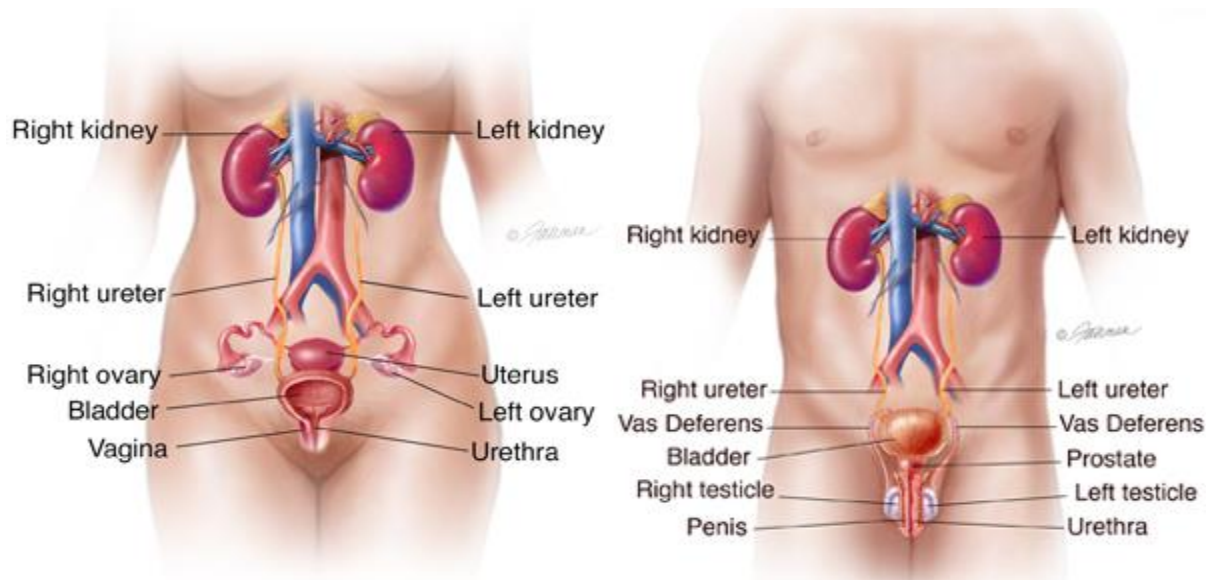


Diagram of the Male and Female Urinary Tracts

SYMPTOMS

The symptoms can differ based on how bad the kidney failure is, how quickly it is getting worse, and what is causing it.

There are 2 main types of kidney (renal) failure: acute (sudden) and chronic (over time).

1. Acute Renal Failure – ARF

- ARF occurs when the kidneys suddenly stop filtering waste products from the blood.

The signs of ARF can be:

- swelling of the hands, feet and face (edema)
- internal bleeding
- confusion
- seizures
- coma
- abnormal blood and urine tests
- high blood pressure

15. RENAL FAILURE

2. Chronic Renal Failure – CRF

CRF builds slowly with very few symptoms in its early stages.

A patient with CRF may not have any symptoms until kidney function declines to 20% or less. At that stage, these signs may appear:

- abnormal blood and urine tests
- high blood pressure
- weight loss for no reason
- low red blood cell count (anemia)
- nausea
- vomiting
- metal taste in your mouth
- loss of appetite
- shortness of breath
- chest pains
- numbness and tingling
- confusion
- coma
- seizures
- easy bruising
- itching
- fatigue
- headaches
- muscle twitches and cramps
- weak bones that break easily
- yellow-brown skin color
- itching
- swelling of the hands, feet and face (edema)
- trouble sleeping

CAUSES

ARF is most likely to happen with:

- low blood flow (such as after complicated surgery or an accident)
- swelling of the kidney (such as a reaction to a drug or infection)
- sudden blockage (such as by a kidney stone)
- very high blood pressure

With ARF, the kidney often returns to normal or near normal after the cause is treated.

CRF is permanent loss of kidney function. The most common causes are:

- high blood pressure
- chronic glomerulonephritis (kidney damage)
- high blood sugar (diabetes)
- polycystic kidney disease
- blocked urinary tract
- kidney infection

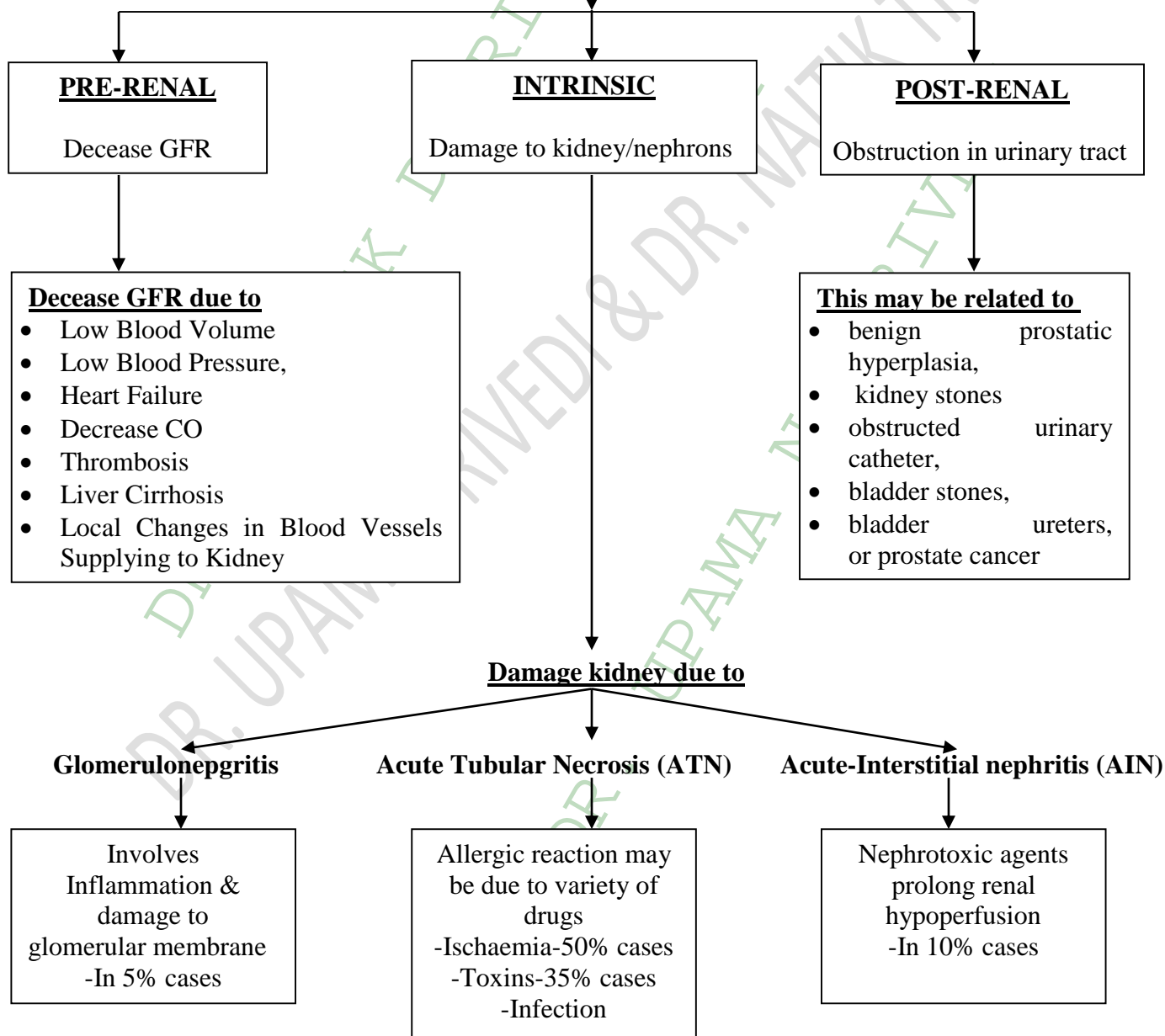
15. RENAL FAILURE

PATHOPHYSIOLOGY OF ACUTE RENAL FAILURE

Acute renal failure is characterized by a decline of renal function over a period of hours to days,
resulting in the failure of the kidney

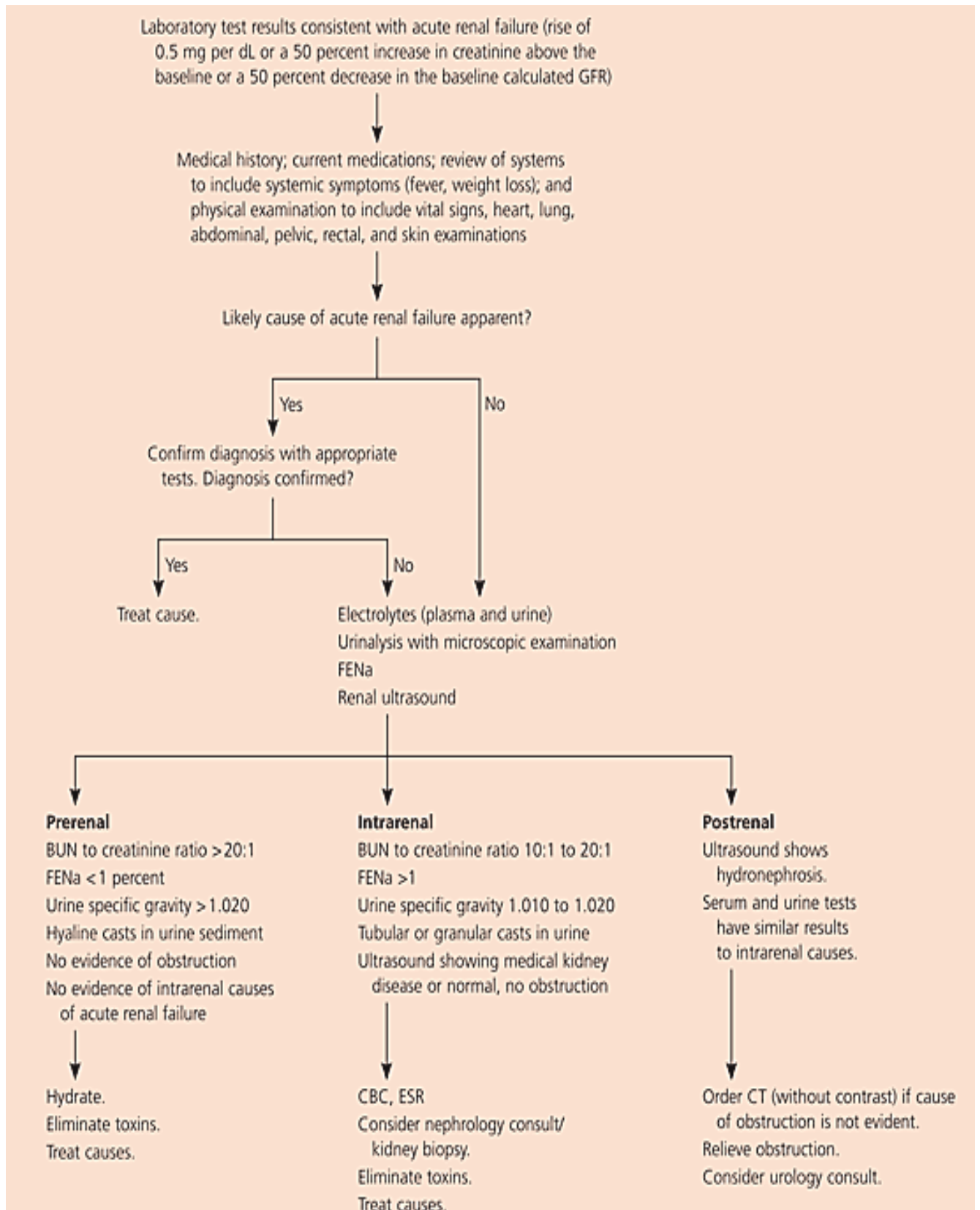
- to excrete nitrogenous waste products [BUN] &
- to maintain fluid and electrolyte homeostasis [K+]

There are three main mechanisms by which acute renal failure is occurs



15. RENAL FAILURE

MANAGEMENT OF ACUTE RENAL FAILURE

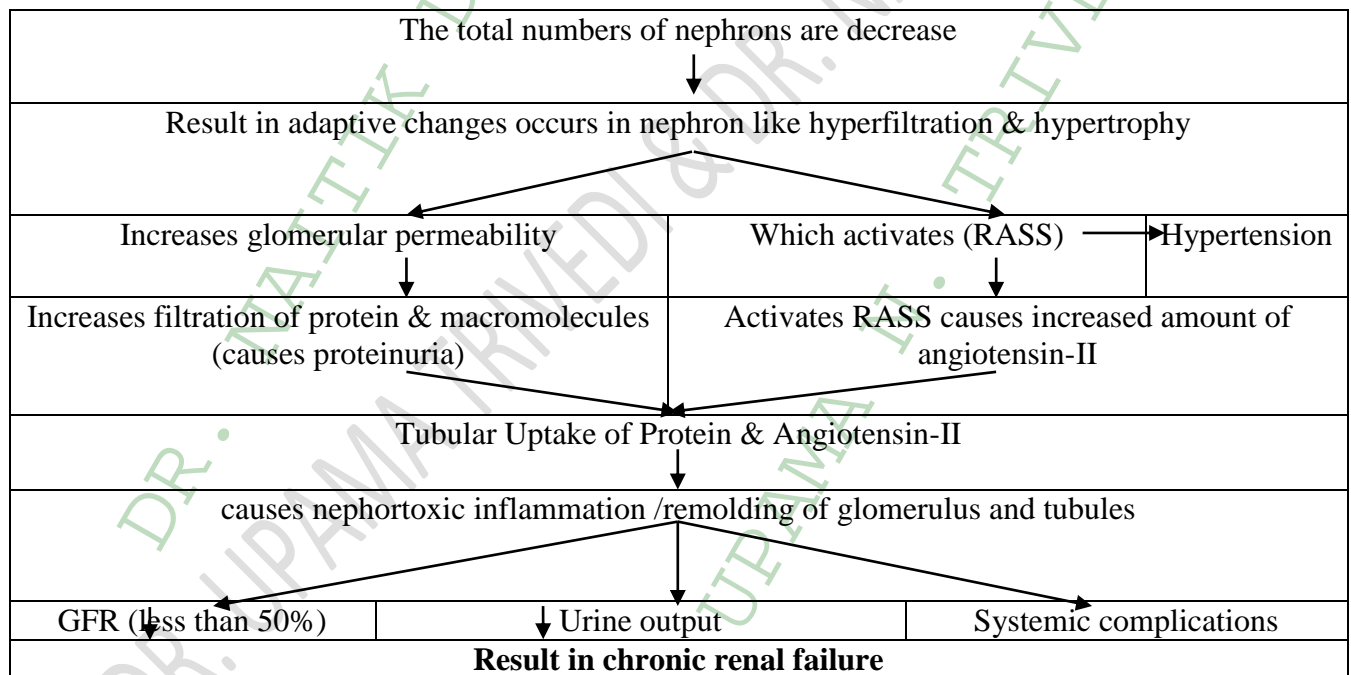


15. RENAL FAILURE

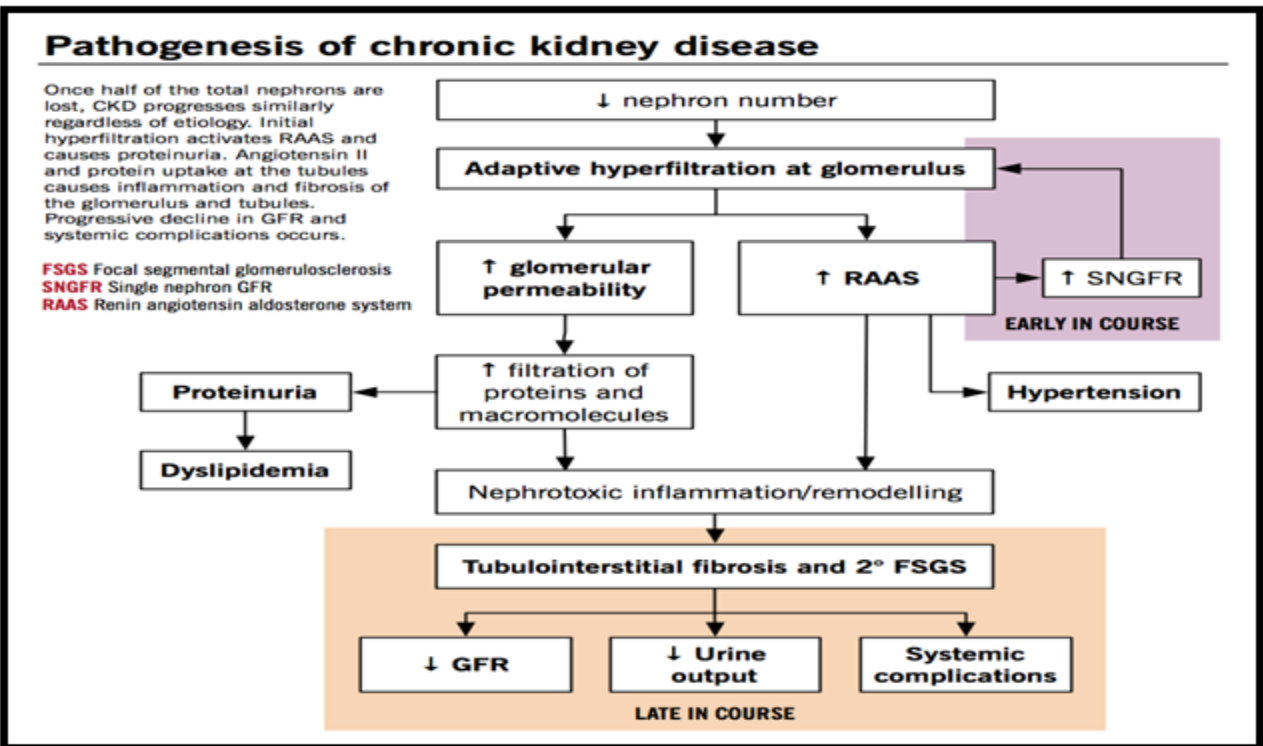
PATHOPHYSIOLOGY OF CHRONIC RENAL FAILURE

- ❖ **Chronic renal failure is defined as either kidney damage or glomerular filtration rate less than 60 ml/min for three months or more.**
- ❖ A normal kidney contains approximately 1 million nephrons, each of which contributes to the total glomerular filtration rate (GFR).
- ❖ In renal injury the kidney has an ability to maintain GFR, in progressive destruction of nephrons, because the remaining healthy nephrons undergo hyperfiltration and compensatory hypertrophy due to which net filtration rate is normal.
- ❖ This nephron adaptability allows for continued normal clearance of plasma solutes.
- ❖ Plasma levels of substances such as urea and creatinine start to show measurable increases only after total GFR has decreased to 50%.
- ❖ The plasma creatinine value will approximately double with a 50% reduction in GFR.
- ❖ When the GFR falls below 15 mL/min/1.73 m² (normal > 90 mL/min/1.73 m²), creatinine and urea levels are high

[*RAAS:-Renin angiotensin aldosterone system]



15. RENAL FAILURE



DR. NAITIK
DR. UPAMA TRIVEDI & DR. TRIVEDI
DR. UPAMA N. TRIVEDI