

*Advanced Pharmacology for  
Nurse Practitioners*

**Clinical Correlation:  
Chronic Renal Failure**

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**Objectives**

- Upon completion of this case, students should be able to:
- Determine the difference between acute and chronic renal failure
  - Identify risk factors for progression to end-stage renal disease (ESRD)
  - Recognize potential co-morbid conditions associated with chronic renal failure
  - Recommend pharmacological and non-pharmacological interventions to alter the rate of progression to end-stage renal disease
  - Provide counseling to patients with chronic renal failure.

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**Overview**

Anatomy  
Function  
Assessment of Function  
Acute Renal Failure (ARF)  
Physiology/discussion  
    Reversible  
    Affects the basic components of the kidney

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## Pathophysiologic Processes

### Basic components of the kidney

- φ Renal vasculature- blood supply
- φ Glomerulus- afferent and efferent arterioles
- φ Renal tubules
- φ Interstitium

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## Clinical Presentation

Glomerulus damage	Proximal tubule damage	Henle's loop damage
Distal portion damage	Interstitium damage	Decrease in urinary stream
	Flank pain	

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- ➔ Diagnosis
- ➔ Lab
- ➔ Desired Outcome
- ➔ Treatment

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*Chronic Renal Failure (CRF)*

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**Pathophysiology/Discussion**

A progressive disease that occurs even when primary insult has been corrected or treatment ineffective.

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- Progression of CRF**
- is divided into four stages:
- Minimal renal insufficiency (CrCl 60-90 m/L/min)
  - Mild renal insufficiency (CrCl 30-60 m/L/min)
  - Moderate renal insufficiency (CrCl 15 to 30 m/L/min)
  - Severe renal insufficiency/uremia (CrCl<15mL/min)

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**Progression of CRF**

**Treatment**

Prevent progression  
Prevent and manage complications

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**Problem Identification**

- Calculate and compare
- Assess rate of progression

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*Patient Presentation*

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**Gastrointestinal**

■ Clinical Presentation	■ Desired Outcome
■ Physiology/Discussion	■ Recommended changes
■ Diagnosis	■ Patient Counseling
■ Treatment/Pharm Opt	■ Assessment Parameters
■ Nonpharm Opt	

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**Hypertension**

■ Clinical Presentation	■ Desired Outcome
■ Physiology/Discussion	■ Recommended changes
■ Diagnosis	■ Patient Counseling
■ Pharm Opt	■ Assessment Parameters
■ Calcium Antagonists	
■ Sympatholytic Agents	
■ Nonpharm Opt	

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**Pulmonary/CV**

■ Clinical Presentation	■ Desired Outcome
■ Physiology/Discussion	■ Recommended changes
■ Diagnosis	■ Patient Counseling
■ Pharm Opt	■ Assessment Parameters
■ Diuretics	
■ Nonpharm Opt	

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**Diabetes**

- Clinical Presentation
- Physiology/Discussion
- Diagnosis
- Pharm Opt
- Nonpharm Opt
- Desired Outcome
- Recommended changes
- Patient Counseling
- Assessment Parameters

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**Diabetic Nephropathy**

- Clinical Presentation
- Physiology/Discussion
- Diagnosis
- Pharm Opt
- Nonpharm Opt
- Desired Outcome
- Patient Counseling
- Assessment Parameters

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**Clinical Course**

One week later...  
Patient Specific Plan

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	<b>Patient Specific Plan</b>
	<ul style="list-style-type: none"><li>■ Increase NPH</li><li>■ Refer to GI</li><li>■ Monitor bone mineral density</li></ul>

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